AIRFIX magazine

AUGUST, 1967

FOR PLASTIC MODELLERS

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MONTHLY

IN THIS ISSUE

The early development of the Churchill

Zulu War in miniature: Mirage fighters

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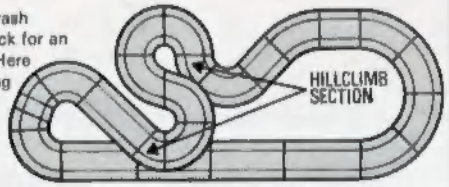

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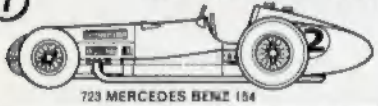

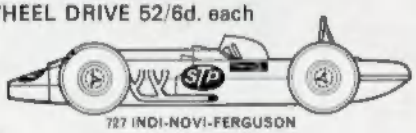

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Volume 8, Number 12

AIRFIX FOR PLASTIC MODELLERS

magazine

August, 1967

IN THIS ISSUE

COVER PICTURE

A dramatic view of a Churchill I an exercises in 1942. Useful details for modellers include the markings ('A' Sqn) and the deliberate obliteration by mud of the white bar of the red/white/red RAC flash—itself almost obscured—on the hull rear. Two Churchill articles are included in this issue.

(Imperial War Museum)

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Editor.....CHRIS ELLIS
Art Editor.....MICHAEL ROGERS
Advertisement Manager.....PETER MACER

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EDITORIAL OFFICES AND ADVERTISEMENT DEPARTMENT
3-4 St Andrew's Hill, London, EC4
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1:76 scale Sd Kfz 7 tractor and Flak 36 88 mm gun are from latest Airfix military kit.

NEWS FROM AIRFIX

The world's greatest value in construction kits

- **Flak 36 88 mm gun**
- **Douglas SBD Dauntless**
- **24-hour record**

PROBABLY the most-requested subject of all in the military modelling field, the Flak 36 88 mm gun and its associated half-track towing vehicle, makes a welcome appearance this month as the latest release in the Airfix Fighting Vehicle series.

The '88'—as it was popularly known—was the best and most famous of all German artillery weapons in the second world war, and it was used with great success on all fronts and in all campaigns throughout the 1939-45 period. Basic design of this gun dated back to the first world war, where it was intended in the first place as an anti-aircraft weapon. In this role it was first used in the Spanish Civil War of 1936-39. Battle experience here led to the development of an improved model, the Flak 36, subject of the Airfix kit, and this was a dual purpose anti-aircraft/anti-tank weapon on a suitable low mounting. The '88' became specially renowned in the hands of the Afrika Korps in the Western Desert campaign, where absence of natural cover and other special factors meant that emphasis was put more than ever on the performance and effectiveness of the weapons which the opposing sides pitched against each other. With its maximum horizontal range of 16,200 yards and firing a 20 lb HE or 21 lb armour piercing shell, at 15-20 rounds per minute, it could easily outshoot and outrange any British tank.

Towing vehicle for the '88' was the Sd Kfz 7 half-track tractor which carried the crew and ammunition and could tow the gun at a maximum road speed of 30 mph.

The Airfix kit contains 110 parts moulded in 'sand' coloured plastic and incorporates a great deal of very fine detail. The Flak 36 elevates and traverses and can be emplaced for firing complete with its folding outriggers. The Sd Kfz 7 tractor has full chassis detail exactly copying the method of construction of the full-size vehicle and it incorporates flexible true-pattern tracks. Price is 3s 6d.

The new Airfix Dauntless finished as a SBD-3, one of two options in the kit.

THE most familiar second world war US carrier-borne aircraft—the Douglas SBD Dauntless—is another addition to the range of Airfix 1:72 scale aircraft construction kits.

The Dauntless saw service with the US Navy, Marines and Army in every theatre of war, and over 5,000 were built up to July, 1944.

The design of the Dauntless had its roots in a 1935 two-seater dive-bomber developed by Northrop but the first SBD-1 Dauntless was not produced by Douglas until 1940. The SBD-3 was standard at the time of the Japanese attack on Pearl Harbor and later played a leading role in the Battle of the Coral Sea. SBD-5 and SBD-6 versions of the Dauntless were also brought into service.

The 50-part kit can be used to build either a US Navy SBD-3 or a US Marine Corps SBD-5 version of the Dauntless. A high degree of detail is embodied in the precision-moulded parts and full sets of transfers enable faithful miniatures to be constructed.

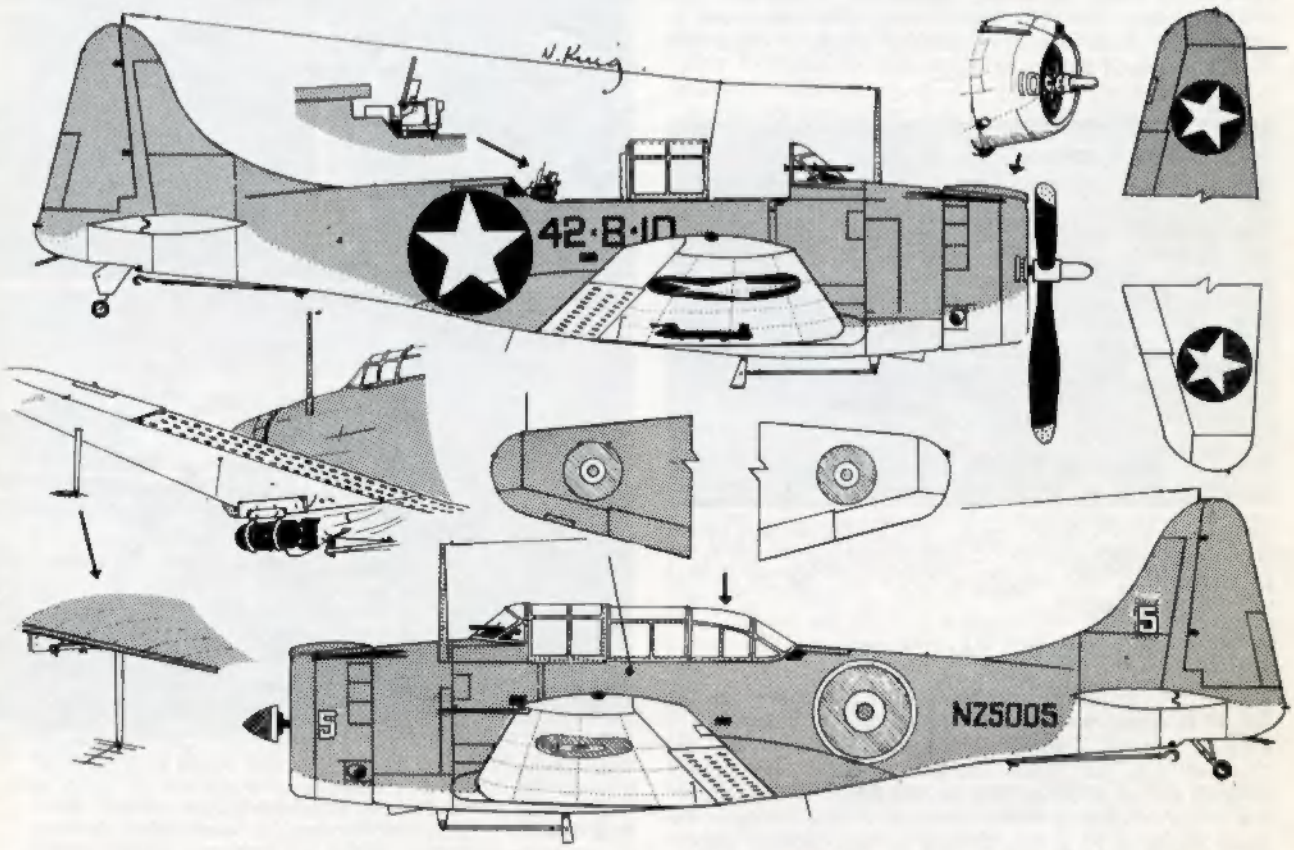
The Airfix Douglas SBD Dauntless costs 2s 3d.

WHAT is claimed as a 24-hour world record for a 1:24 scale slot car was achieved by an Airfix/MRRC J Type Ford in the hands of Derek Vaughan and H. Hughes participating in the Banbury 24-Hour Race on Saturday/Sunday, June 17/18 last. Staged in Overthorpe Hall, Banbury, and organised by the Banbury Miniature Car Racing Club, the race was of the 'Le Mans' type with eight teams competing on a 141 ft circuit. Hughes and Vaughan, the winners, covered 183 miles, 329 yards, during the race, this being 6,815 laps of the circuit. Their Airfix/MRRC car was the only all-British car in the race and it was unique in being a real miniature 'prototype', as the J Type Ford, one of a new series planned for release by Airfix/MRRC, is not yet available to the public. Messrs Hughes and Vaughan are from the Oxford Model Centre shop and their J Type Ford was a true 'works' entry, being made available by Airfix/MRRC specially for the race and, incidentally, providing an excellent chance of testing what is likely to prove a popular new model when it is released very shortly.

DAUNTLESS COLOUR SCHEMES

By N. King

Above: *SBD-5s from VB-5, USS* Yorktown, *October, 1943. Note different styles for the three-tone non-specular finish (Sea Blue/Intermediate Blue/Insignia White). Nearest machine has small underwing insignia and no Baker radar array. Arrester hooks are red and white and prop hubs Intermediate Blue* (US Navy photos).



These drawings give alternative colour schemes and detail alterations applicable to the new Airfix kit. Side elevations are to 1:72 scale.

Drawing notes

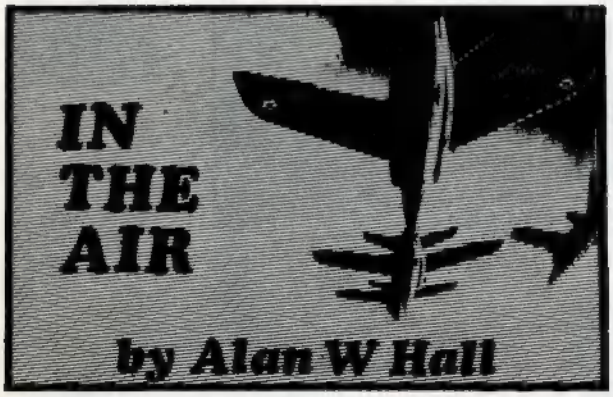
Top aircraft is a SBD-4 of VB-42 aboard USS *Ranger* operating in the Atlantic area, February 1943. Arrester hook has red and white bands (as in top picture) and rear gun is not fitted. Note detail of mount and armoured folding face shield. Insignia are in six positions. Colour scheme is Blue-Grey upper surfaces and Light Grey undersides. Colour mixes for these are given in the kit instructions. ID code on sides is black and '10' on cowling rim (each side) is white. Prop hub silver, prop tips yellow, and prop blades black.

Lower aircraft is a SBD-4 of a Royal New Zealand Air Force OTU. Colour scheme as above, but arrester hook is light grey and spinner is red with white band. Serial is black and code '5' is white. Note unusual absence of fin flash on this machine. RNZAF roundel is light blue/white/light blue with yellow outline on fuselage only, six positions. Mid-upper guns not fitted.

Detail view, left, shows Baker radar array fitted under both wings of SBD-5s. Support is light grey and aerial is dull metal. Bomb, as shown on rack, is metallic black with two yellow bands.

Note absence of tailwheel fairing and underwing bomb racks on RNZAF machine. Easiest way of making RNZAF insignia is to overprint spare RAF transfers of suitable diameter.

Below: *SBD-5 from VB-10, USS* Enterprise, *seen during a strike against Truk in April, 1944. Finished in the three-tone non-specular scheme, the white 22 is repeated on sides of cowling rim. Note Baker radar and whip aerials on undersides. Also folded face shield on machine gun mount.*



ALTHOUGH built as long ago as 1935, the 24 ft wind tunnel at RAE Farnborough is still the largest working section available in Europe. It has an interesting history as in its early years it was used mainly for tests on full scale aircraft.

Such ancient and historic types as the Gauntlet, Gladiator, and the early prototypes of the Hurricane and Spitfire all went through their paces in its cavernous interior.

Many of the problems associated with the Westland Whirlwind and the pre-war home-built Flying Flea investigations were conducted at Farnborough and use was also made of the tunnel for testing engines and finding improved cowling shapes. The first Whittle jet engine was tested in 1941 under strict security conditions which included the posting of armed sentries at the tunnel entrance.

The wind is produced by a large six-bladed wooden fan, 30 ft in diameter, driven by a 2,000 hp DC electric motor giving wind speed of up to 115 mph. By present standards the 24 ft tunnel is now very slow but it still has its uses in scientific investigation.

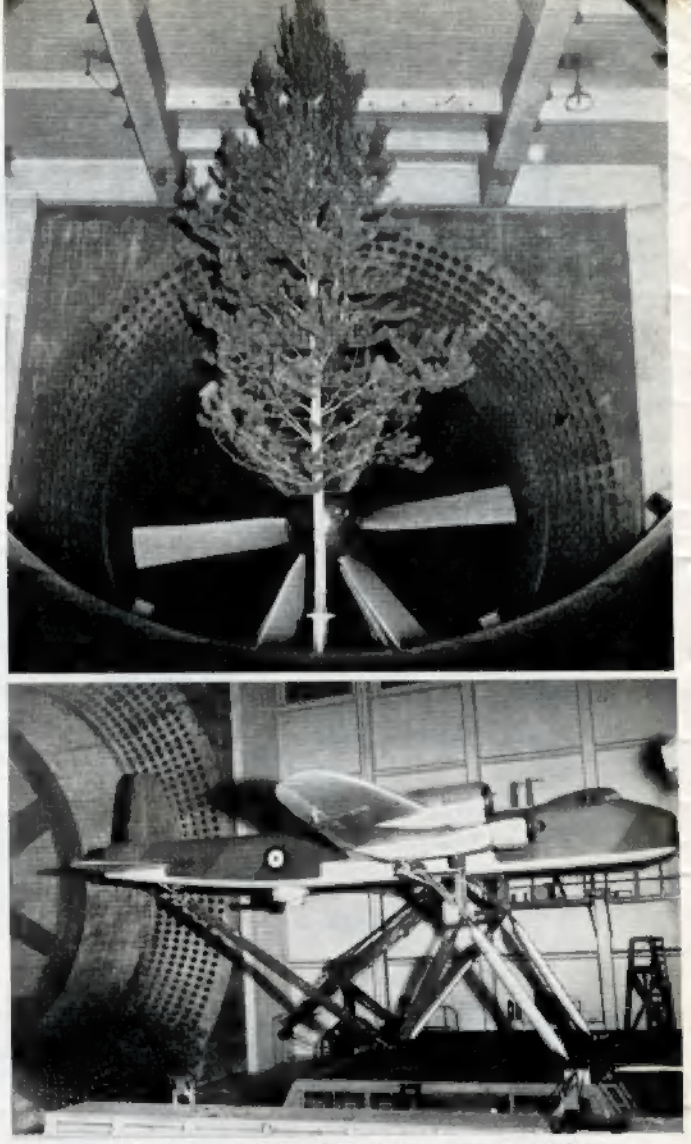
TESTS ON TREES

DURING the recent open days at RAE Farnborough the 24 ft tunnel was shown with a full-size fir tree in the working section. Tests have been carried out to find the effect of wind on forests for the Forestry Commission's research station at Alice Holt in Hampshire. Storm damage is a major hazard in British forestry; trees growing in exposed places or on poorly drained soil are liable to be uprooted or damaged by high winds.

To obtain a better understanding of the problem and to find methods of reducing the damage, the Forestry Commission has been carrying out research over the past few years. Full scale tests on actual trees have, therefore, been made in the 24 ft tunnel and wind speeds of up to 60 mph have been reached. During one test to find out the actual breaking strength of a fir tree it was subjected to increasing speeds until it broke at 86 mph. Several different species of conifer have been tested.

One of the main results from these tests is the discovery that trees streamline themselves as wind speeds increase, so that the area exposed to the wind is reduced. As a result wind loads increase roughly in proportion to the wind velocity—whereas wind loads on a solid object increase roughly as the square of the wind velocity.

The results of the full scale tests at RAE have been used to develop suitable scale trees so that tests can be made in smaller wind tunnels (at the National Physical Laboratory) to investigate different shapes of plantation and variations in loads on trees in different parts of the plantation.



Top: *Unusual occupant of the 24 ft wind tunnel at RAE Farnborough was this fir tree during tests to find out the effect of wind on trees for the Forestry Commission. This view also shows 30 ft diameter propeller which creates the wind.* **Above:** *Historic picture taken in 1940 shows the S.31 half-scale Stirling on test in the tunnel* (MOD photos).

Tests are also made in the field; anemometer arrays on tall masts inside and outside the forest are used to measure how wind velocity varies with height, and the measurements are automatically recorded on punched paper tape for analysis.

Most of the work in the 24 ft tunnel is still connected with aeronautical research and tests in recent years have included large models of the Belfast and Skyvan. Other work has been carried out on the proposed variable sweep strike aircraft; airscrews for hovercraft and the whole rear fuselage of a Wessex helicopter including the tail rotor were tested. Outside the aircraft world, wind force tests have been made on radar and satellite tracking aerials, racing and saloon cars and even tests on Sir Edmund Hilary's Everest expedition equipment.

FIRST FLIGHT

THE Mitchell-Proctor Kittiwake, the aircraft which was mentioned in this column three months ago, has now made its first flight. This took place at Lasham, Hants, on May 23 last.

Piloted by Mr D. G. Addicott, test pilot for BAC, the aircraft behaved better than the designers expected to achieve in early development. Since then a number of pilots have flown the single-seat aircraft including Mr 'Bill' Bedford of Hawker Siddeley, Dunsfold. The six hours in the air at the time of writing, have included a number of preliminary tests. All of the pilots said that the Kittiwake has delightful handling characteristics.

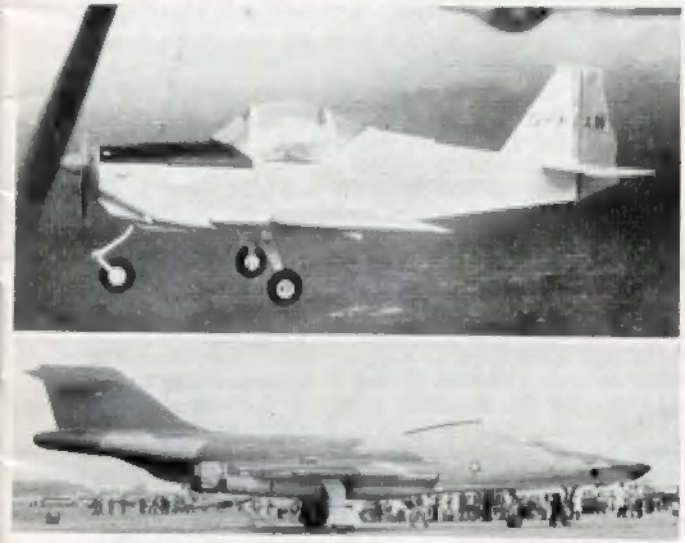
During stall tests the Kittiwake displayed no abnormal characteristics and the manoeuvre was found to be completely innocuous. Similarly spinning entry and recovery was conventional. Rate of climb, approximately 1,000 ft per minute, is as predicted.

Tests have been carried out with the full 22 gallon fuel load on board. So far the aircraft has flown at 105 knots and has reached 11,000 ft. More than 3G has been demonstrated and simple aerobatics have been attempted. The only problem so far encountered has been mild overheating on one cylinder which has now been rectified by modifications to the cooling system.

Looking ahead, Mr Mitchell who is a scientist in Structures Department, RAE Farnborough, and his colleague, Roy Procter, employed by BAC, are thinking about the two-seat touring/trainer version of the Kittiwake and drawings are well under way. The Kittiwake Mk 1 will be used as a glider towing aircraft and aerobatic mount.

RN AND USAF ON SHOW

TWO airshows visited this month include the Naval Air day at Lee-on-Solent and the USAF open house at RAF Wethersfield. Both provided a couple of interesting aircraft for the record and although the flying programmes at these and almost all of the other shows seen recently seem to be on the flat side one can hardly criticise as there are relatively few aircraft to go round.



Top: *The little Mitchell-Proctor Kittiwake on its maiden flight.*
Above: *Camouflaged RF-101 was one of the interesting types at Wethersfield.*

Close-up on a Kaman HH-43B Husky during the impressive fire-fighting demonstration at the USAF open day at Wethersfield.

The best find at Lee was a Gannet in Carrier-On-Deck markings. Serialed XA430 the aircraft, a Mk 1, is based at Lee and used for communications duties. It is painted in gloss dark grey similar to that seen on Buccaneer aircraft recently, but the serials and ROYAL NAVY are in white.

The rest of the programme was made up of Wessex, Wasp, Sea Vixen and Buccaneer demonstrations plus the almost inevitable Swordfish and the more rare Hart from Dunsfold. The static park had Gannets, Scimitars, a Vixen, Hunter GA 11, Sea Devon, Heron and the latest SRN 6 hovercraft which has just been taken over for the Royal Navy.

Wethersfield's flying display had a lot of help from the RAF. It did however allow the F-100s from Woodbridge to support the operations by little well-timed bombing runs accompanied by realistic explosions from the far side of the airfield. A Husky with an underslung fire-ball extinguisher put out a very nice fire to open the programme and later on a Dominie from Stradishall and a Sabreliner took to the air but not as the photographers had hoped, in formation.

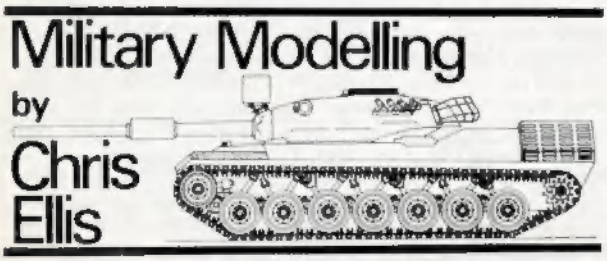
From previous Wethersfield shows one has become to expect various NATO contributions (remember the Turkish F-100 a few years ago?) but this time the best that could be seen were two CF-104s from the 3rd Wing RCAF. All silver, these two aircraft were serialed 12827 and 12829.

Elsewhere in the static was a camouflaged RF-101 from Upper Heyford, serialled 060097 and two Phantoms from Bentwaters with 40972 and 40947 on the fins. Recent remarks about the fading of certain colours in the new camouflage patterns of the USAF were well borne out when looking at these two aircraft. The tan colour had faded considerably and had a very pink look about it. The present controversies about wartime camouflage patterns and the many and various ideas put forward by experts can be likened to the situation at present to be seen on most USAF aircraft coloured in this way. It is to be hoped that notes taken now will not be lost in another 20 years time and that positive proof will be retained in order to dispel what could easily become a subject for heated argument by those following the modelling hobby in the next couple of decades.

Early marks of Churchill

PUBLICATION of the Churchill tank history in AIRFIX magazine and the associated colour cover to this issue makes this the ideal time to complete the modelling possibilities with the basic Churchill combat tank. Variants from Mark III onward were covered in our January, 1966, issue, so we are left to tackle the very earliest versions.

As the Airfix kit depicts the Mark VII, which was a major re-design over earlier models, the changes which have to be made by any one who wants a Mark I or II are quite considerable. The Marks I and II had a smaller turret than the Mark VII, so for a start the turret from the kit must be discarded and the turret ring which is moulded on to the hull top (part 85) must be very carefully sawn off. A razor saw will enable you to do this very neatly. With the turret ring removed, you are left with a hole in the hull top which has to be filled with a disc of 30 thou or 40 thou plastic card. The easy way of doing this is to clean up the hole with a file, place the hull top

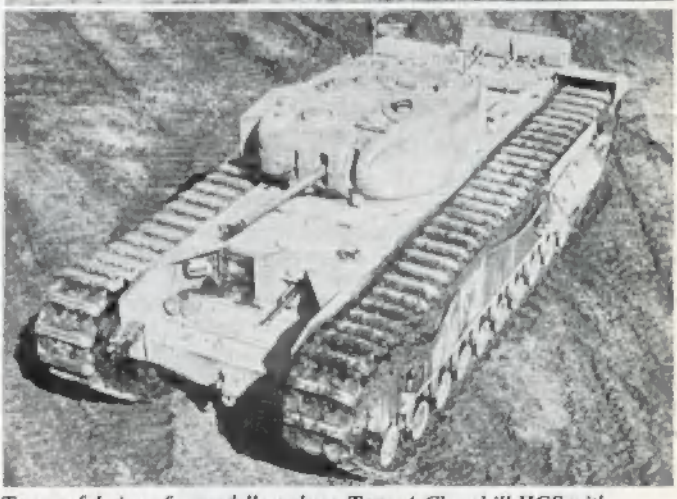


over the plastic card, and draw a pencil round inside the hole to get an exact size disc.

With the inserted disc cemented in place, take parts 12 and 54 (the inner hull sides) and cut away the front horns with a vertical saw cut immediately ahead of the idler wheel bosses. Then make another saw cut immediately above the idler wheel bosses and 14 mm back parallel to ground level, thus removing the inside top of the front horns. Study of the Mark I in the model pictures will show this modification.

Before fitting the outer hull sides (parts 42 and 84), however, some major alterations are needed, entailing the removal of the track cover sections. This is done by first of all sawing off the front curved portions, but being careful not to cut off the outer idler bosses, and then very carefully sawing off the top section along the line where it joins the hull sides. Once again, the precise modification is apparent from the model pictures. My own preference was to leave the rear curved section of the track guard in place as most Churchill Is had these, though you could if you wished remove this also.

Other modifications to the outer hull sides entail the removal of the locating pips for the spare track shoes, and the removal, by cutting and filing, of the circular side escape doors. These should be replaced by 8 mm square doors from 10 thou plastic sheet or card. As a final subtle touch, cut a small triangular section 2 mm back along the bottom from the front edge of the armour plate on the hull sides. You'll best see what I mean by looking at the heading picture and comparing it with the hull sides as provided in the kit. The cut in question should be made

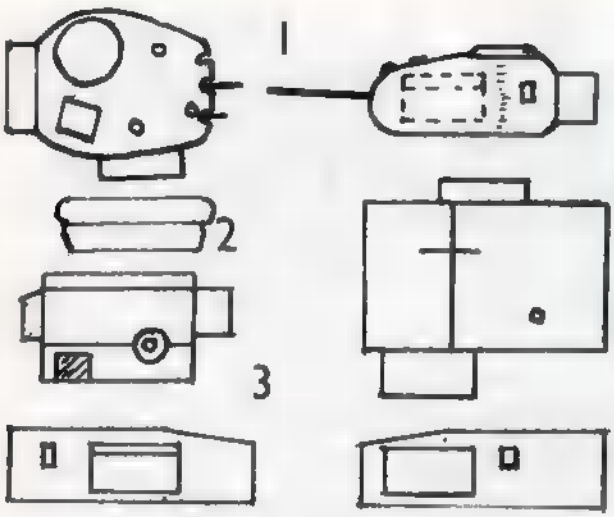


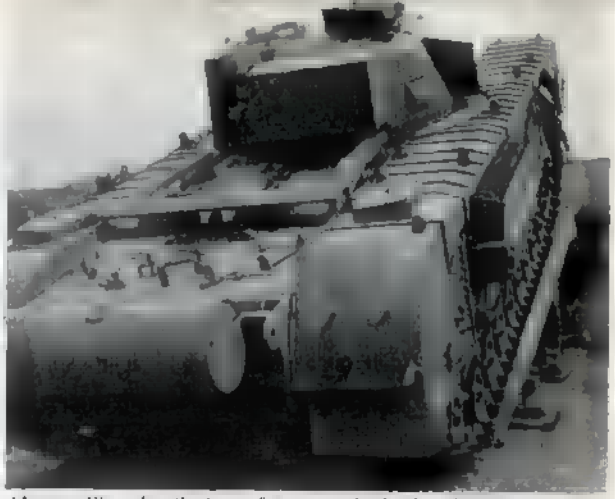
Two useful views for modellers show, **Top:** *A Churchill IICS with 2 pdr gun in hull and 3 inch howitzer in turret. Note square side doors, horn stiffeners, and rectangular visor aperture for driver. Note also early style intakes.* **Above:** *A Churchill II showing Besa machine gun in hull front and turret detail* (Imperial War Museum photos).

on the bottom edge just above the first bogie bracket on each side. This is such a small point that it is not noticeable if it's overlooked, but such attention to detail is well worth incorporating in my view.

Assembly now follows the kit instructions, except that the exhaust manifold, side air intakes, and vertical front plate (part 87) are omitted. The exhaust manifold (part 93) is modified by filing the upper faces of the two side extensions to give a rounded cross-section, though you can if you wish leave it unaltered to depict a re-worked vehicle with plating over the pipes. The side intakes are modified to the shape shown in the drawing and apparent from the heading picture. This looks difficult, but the easy way is simply to turn the intakes supplied in the kit (parts 101 and 102) upside down. Then cut and file the outer edges to give the characteristic rounded shape and, similarly, file the upper and lower edges to a curve. Then simply cement the modified intakes into the locating slots, remembering to keep them inverted. Just above the intakes on each side add a strip of plastic card 18 mm long and 1 mm deep to represent the protective flange carried on the early vehicles.

The vertical front plate is omitted altogether and replaced with a 10 mm × 4 mm rectangle of 20 thou plastic sheet over the left hand aperture only. This should be drilled 2 mm in from the right hand edge to take either the 3 inch howitzer or the Besa machine gun, depending on whether you are modelling a Mark I or Mark II. A 3 mm × 2 mm vision flap to the left of the gun





Above: *Fine detail view of a re-worked Churchill II shows full track covers fitted, new type air intakes, and shape of right hand side of turret. Note jettisonable fuel tank at rear which could be added to model from 16 mm length of 5 mm diameter plastic or dowel.* **Left:** *Scale drawings for (1) cast turret on Churchill I, II, and IICS, (2) early type of side intake, and (3) superstructure and fittings for Churchill 3 inch Gun Carrier.*

aperture is made from another rectangle of plastic card cemented over the new front plate, while another plastic vision flap 4 mm × 3 mm, should be cemented over the right hand square opening which remains in the hull front. You can cement this in either the open or closed position and the heading picture shows the arrangement very clearly.

For a 3 inch howitzer as in the Mark I, I found that the front 14 mm cut from a spare Sherman gun barrel was very effective, though any spare plastic of about this cross-section will do. If you want a Besa machine gun mounted in the hull front, simply use part 88 from the kit.

To complete the basic Churchill I or II, you need a completely new turret and the only way of making it is to carve one from balsa or other soft wood. I've given a drawing, but as the very irregular shape defies description, we've provided plenty of reference pictures in this issue to show it from every possible angle. Start by cutting an oblong of balsa to the overall maximum width, length, and height of the new turret, taking measurements from the drawing, and then use a file and sand paper to get the precise shape. It is, in fact, simpler than it looks—certainly the easiest turret shape of any I've had to carve. Main points to remember are the inward curve at the front, the three apertures in the front face for Besa, main gun, and telescope, and the fact that the left side is vertical but the right side slopes. The apertures in the turret front are best depicted by grooves filed into the balsa by one or two strokes with a rat tail file.

Turret details are given on the drawing. The cupola comes from the kit, with the ring filed down almost flat and cemented in position. The small hatch on the right is made from two thin card flaps, the pistol ports in the side are cut from card, and the periscopes and ventilator on the roof are all cut from the Mark VII turret. Finally, the rear stowage box can be cut from the kit turret—but note that it is shallower than in the Mark VII—and the side stowage box is made from plastic sheet. UHU will stick all these parts to the balsa. I used the pivot cut from the kit turret and cemented in the bottom of the balsa one, and made a 2 pdr gun from a thick pin 16 mm long. The Besa machine gun is cut from the 75 mm mantlet in the kit. If you want a Churchill IICS, simply reverse the armament.

So much for the basic Churchill I or II. The fact that these vehicles were 're-worked' gives a lot of scope for simplification, particularly for beginners. For instance you could build a vehicle with full track covers fitted, in which case the early instructions in this article can be ignored and the hull sides assembled as in the kit instructions. Similarly you could have a vehicle with the later type of side intake fitted, also as provided in the kit. In this case you need only worry about fitting a square escape door in place of the Mark VII's round one. Likewise, you could fit the horn stiffeners which, in model form, are 4 mm right angle triangles of card cemented as shown in the front corners on the vehicles in the first two pictures. Not all re-worked vehicles had them, however.

Finally, if you don't fancy your hand at carving a turret at all, try the Churchill 3 inch Gun Carrier which is extremely simple to model. This was on a re-worked Mark I chassis, so the full hull sides and later styles of intakes are used, as in the kit. Only a square escape door needs to be fitted. The superstructure is made up face by face from plastic card, as drawn, and cemented on the hull top. A plastic cocktail stick is ideal for the 3 inch gun, cut to a length of 22 mm. The kit cupola is used, suitably filed down and the only other refinement is to cut lengths of Sellotape to complete the ribbing on the track covers where the turret cut aways are moulded.

Below, left: *Churchill I under construction showing balsa turret and hull modifications.* **Below, right:** *Completed models of a Churchill I and Churchill 3 inch Gun Carrier. Note contrast between vehicles with and without track covers.*

ZULU WAR

PART 2: THE NATIVES

BY C.JONES

THE Zulus were a tribe of the Bantu race who by conquest and annexation had gained a large kingdom in southern Africa. By occupation, they were herders, but first and foremost they were warriors. Their level of military organisation was surprisingly high. Each major kraal (Zulu village or 'town') was the equivalent of a barracks and training centre for the district and, in time of war, each supplied a regiment. Regimental pride was just as great in the Zulu impi (army) as in the British. Once the veteran uThulwana regiment came into contact with the InGobamakhosi regiment of young bloods, the result was 60 dead. On the eve of the war in 1879, the Zulu impi numbered about 50,000 men in 35 regiments, usually brigaded into corps of three. An induna or chief was the colonel of each regiment. The most powerful regimental induna in each corps was the divisional commander and the leading divisional induna was the C-in-C of the impi.

Now a word about Zulu tactics. On nearing the enemy, the Zulu impi would move into a vast semi-circular formation, the centre of which had perhaps double the strength of the flanks. This centre was known as the chest, and was meant for the main attack and bore the brunt of the fighting. The flanks, however, would be the first to charge, the idea being to outflank, then turn in on the enemy. They were known as the horns. A reserve of men, as strong as the chest, were known as the loins, and from their position behind the chest, could be sent to any part of the line which needed re-inforcing. Frequently the loins were made to sit with their backs to the enemy, so as to remain calm. The enemy could not then retreat, as the horns would have joined behind them, and then proceeded to split their forces in two. All the while, the chest would have been attacking in furious rushes.

Zulu strategy was virtually non-existent. They simply sought out the enemy as quickly as they could, a necessity seeing that they took no provisions with them, and tried to engage him. The chief induna usually sent out smaller impis from the main one to scout for the enemy. The Zulus relied on their frenzied courage and each warrior's physical prowess to win their battles.

USE RED INDIANS

The Zulu warriors come from the Airfix Indian set. Firstly, the head ornaments and long hair styles must be trimmed off. The figure with the tomahawk must have the fringes on his sleeves and trousers removed by cutting. The ridges where his trousers come over his moccasins are filed down, and a piece of sculpting is necessary to give his torso the appearance of a naked chest and back. The Zulu apparel consisted solely of an umuTsha, a type of loin cloth. This varied in form, and was made from cows' tails, knotted thongs, animal skins, etc, hung from a leather thong. The Indian loin cloth will pass for this. Footwear of any sort was despised as soft. The most veteran and distinguished of the Zulu regiments were of the iKhehla status; that is, they were granted the privilege of marrying. To show this, they wore the isiCoco or headring. This must be effected by tying a length of thread around the Indian's head.

The fierce regimental spirit of the Zulus has already been mentioned. Each regiment carried a different colour of cowhide shield (the hair was on the outside) and wore distinguishing ornaments. Take, for example, the three regiments which attacked Rorke's Drift. The uThulwana had white shields (being one of the oldest regiments, their shields came from the hides of the most prized cattle) and wore ear-flaps of green monkey skin, plus brilliant ostrich feathers in their isiCocos. For the former, tiny pieces of paper must be cemented either side of the isiCoco, the latter come from frayed out tufts of cotton wool. The inDlu-yengwe carried shields of black and white patches and wore cowtail necklaces and anklets. Again tufts of cotton wool must be cemented around the neck, so as to hang down over the chest and back. The uDloko wore an otter skin suspended from the isiCoco and their shields were from reddish-brown cattle, dotted with white.

There was great variety among the other regiments too; as many different shield colours as there were colours of cow. Cowtail leg ornaments, reaching almost to the ground, armlets and garters of this or various furs, plus necklaces of skins, the more colourful being of leopard and zebra were all common. The isiCoco was decorated with ostrich feathers, skins, tails of various animals (as in the illustration) and so on.

The Zulu army was armed with cowhide shields, iKlwas or short, broad-bladed stabbing assegais and often a knobkerrie, carried inside the shield when the iKlwa was being used. The shield usually covered the warrior from chin to knee, but there were variations as the photographs will show. The shield is cut from card, the reinforcing centre shaft from a pin, long enough to project from either end. A thin layer of cotton wool should be added to the outside of the shield to give a hair texture. The centre shaft was attached to the shield by thong lacing which should be painted on. It was surmounted in many regiments by a fur tuft; this comes from cotton wool. The Indian spear is rather too long; it should be shortened to about 18 mm, and given a broad blade from paper, this about 6 mm long. The Indian tomahawk makes a suitable knobkerrie. In most cases the left arm of the Indian will have to be cut off at the elbow, and re-cemented on at a new angle so that the shield covers his body. The spear arm can be reset too, so that the warrior is thrusting underarm, using his iKlwa as a short sword as the Zulus often did.

The Zulu impi possessed a large rifle corps. Their marksmanship was

abysmal, but the very number of them made them something to reckon with. The Indian bowmen supply the riflemen, their bows and quivers must be removed, and a rifle from another figure cemented in their hands. Bandoliers can be made by cementing short lengths of scrap plastic (something like the spear shaft diameter) to a narrow strip of paper, to represent the cartridges. The strip is then cemented over the shoulder and the ends joined. The fire-arms were anything from old flintlocks acquired from the first Natal settlers to the then modern Martini-Henry rifle stolen from the British or British dead.

The Indian chief minus his head-dress and peace pipe becomes a robed induna. When leading his troops into battle, however, he would don his regiment's war regalia.

KAFFIR TROOPS

The Kaffirs or native inhabitants of Natal were a vastly inferior race to their neighbours, the Zulus. At the outset of the war, the British, impressed by their numbers, conscripted three regiments of them, the 1st, 2nd and 3rd Natal Native Contingents. Many companies were armed with the Martini-Henry: this good weapon was completely wasted on them. Their European NCOs and officers soon realised this, so no soldier was alloted more than five rounds in his bandolier. Although they were lazy and cowardly, they might have served well in a scout capacity. Maybe the British expected too much of them; in any event, one commander disbanded his regiment in disgust, threatening them angrily if they refused to go home. Still, a modeller must not only re-create the successful regiments.

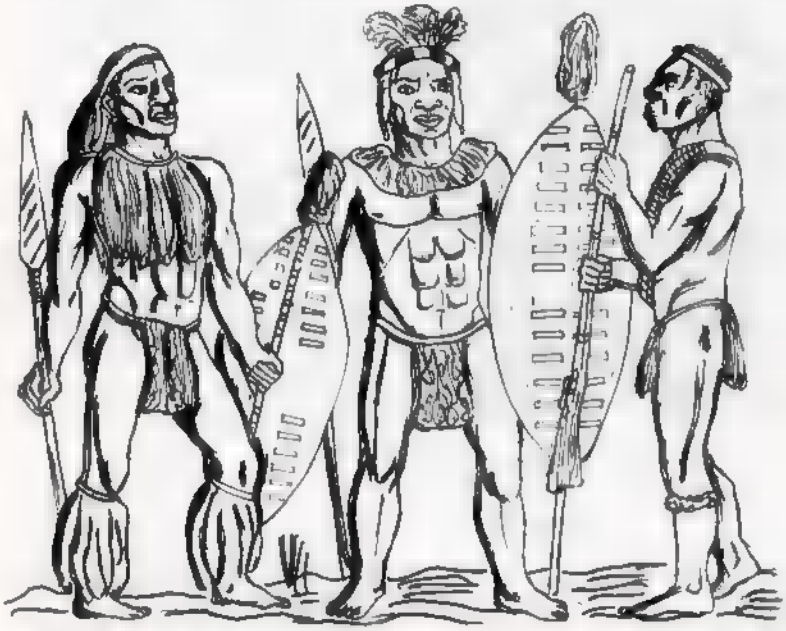
The conversion is the same as the Zulu one, omitting any decorations but painting a red rag around the isiCoco. They were armed with rifles or assegais and shields, as before.

In complete contrast to these troops were the native mounted units of which there were about half a dozen. British officers soon discovered their worth and courage, and armed them with Westley-Richards cavalry carbines. The Red Indian riders will do for these. They wore only the loin cloth, the red head band, the bandolier and the carbine so the conversion is as before. Mounted on swift Basuto ponies, they were of great use as scouts and vedettes.

NCOs and officers for these native troops come from the Airfix Cowboy set, who represent the tough Natal civilians and farmers quite effectively. They, incidentally can also be used for the volunteer horse units mentioned last month. You'll also find that the figures from the Airfix Wagon Train can be used for Natal Settlers.

(Continued next month)

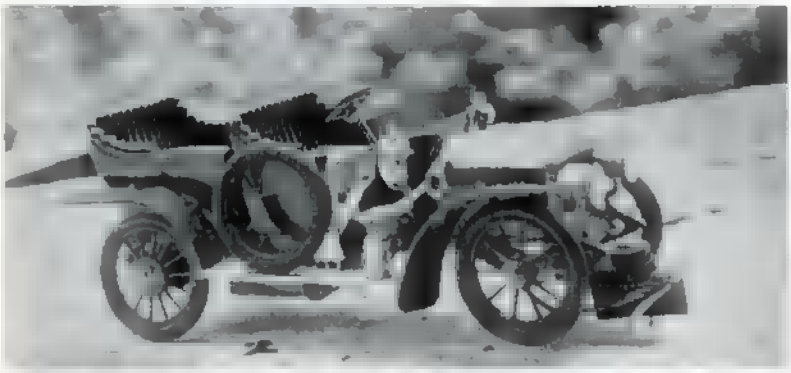
Completed native conversions from the Airfix Red Indian set for the Zulu War period. **Key:** *(1) uDloko warrior; (2) a Kaffir of the Natal Native Contingent; (3) Zulu rifleman; (4) an Induna (chief) in robe; (5) inDlu-yengwe warrior; (6) uThulwana warrior; (7) trooper of a British native horse unit. All colours given in text.*



Left to right: *Detail drawings of three types of Zulu fighter. A warrior of the inDlu-yengwe regiment; a warrior of the uThulwana regiment; and a Zulu rifleman with flintlock musket.* **Heading:** *A mounted Basuto with Westley-Richards carbine typifies the native troops who fought on the British side.*

PASTIMES REVIEW

READERS who recall the popular series titled 'Layout Realism' by Alex Bowie which appeared in AIRFIX magazine some years ago will be delighted to know that these interesting articles for railway modellers are now being reprinted in a new publication *Pastimes Review* which is being produced as a monthly round-up of news and views from the model world by Beatties of London. *Pastimes Review* contains a great deal in the way of new product information, layouts, and useful tips. It is available at 1s 6d per single issue or 20s for a whole year from Beatties of London, 15 Broadway, London N14.



Only the guide shoe visible on this Airfix 1905 Rolls-Royce gives it away as a motorised version for slot racing. Compare with the underside view opposite. Note the rubber tyres.

A Rolls for racing

NEXT kit from the Airfix 1:32 scale old timer range which I considered for motorisation was the very attractive 1905 Rolls-Royce. Though the Rolls is not now regarded as a competition car, it did, in fact, compete in the Tourist Trophy event of those days, and achieved second place, so the 1905 model can be legitimately 'entered' for old time events on a miniature slot racing circuit.

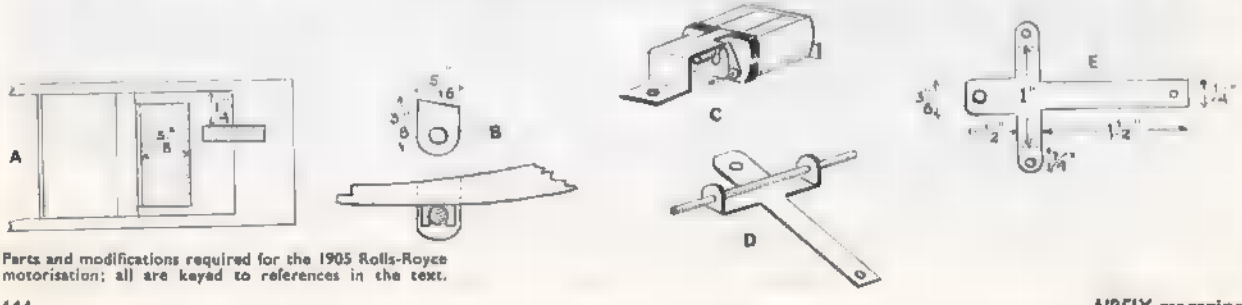
Conversion of the standard kit follows the lines of the previous models in this series and, once again, a standard Airfix motor and gears are used. These are obtainable as spare components from shops specialising in slot racing equipment.

Commence by cutting away part of the chassis (part 4) to clear the contrate gear and motor armature. Sketch A shows the necessary details. Then cement parts 1, 2 and 4 together and cement the front springs, 10 and 11, in position. Allow to set thoroughly. In the meantime the rear axle can be fabricated. This is a 1¾ inch length of 3/32 inch steel or brass rod. The Airfix contrate is mounted with the teeth 1/16 inch off centre and locked in position with punch marks as described in previous Wheelspin articles. The axle is supported by two plastic card bearings shaped as in sketch B. These are slipped on to the axle before fitting the wheels.

All four wheels will need hub bushes and I made these from ¼ inch lengths of 1/8 inch outside diameter brass tube. 'Belling' these slightly at one end with a centre punch gave a tight fit against the wheel hub when the rear wheels were tapped ■■ to the axle. This does not apply to the front wheels, which will need to rotate freely.

Before the wheels are fitted, however, the tyres which are moulded on to the rims in the kit must be removed and replaced by rubber ones. This can be done on a lathe, using a sharp chisel and/or a fine file to skim off the plastic tyre mouldings. If you don't have a lathe a reasonable substitute can be extemporised from a hand drill, securing the wheel in the chuck with a suitable small bolt and rotating it that way, as has been described in previous articles. When you're removing the moulded tyre, do it very carefully as the rim that is left is thin and fragile. A small groove is filed round the circumference of the rim to provide a grip for the new tyre, which is made from a rubber ring as used for umbrella repairs. You can buy these very cheaply in quantities of a dozen or so from large umbrella repair shops and they are perfect for the job. A touch of UHU secures the tyre in place.

Before installing the back axle assembly, the bodywork and rear springs can be painted. While these parts are drying, the motor mounting can be made. The rear, or sprocket end, is supported by a strip of plastic card 7/8 inch × 1/8 inch in size with notches filed in to register with the small lugs on the end of the motor. The front support is a metal bracket shaped as in sketch C. This engages in the slot between the motor brushes and is fitted to the chassis



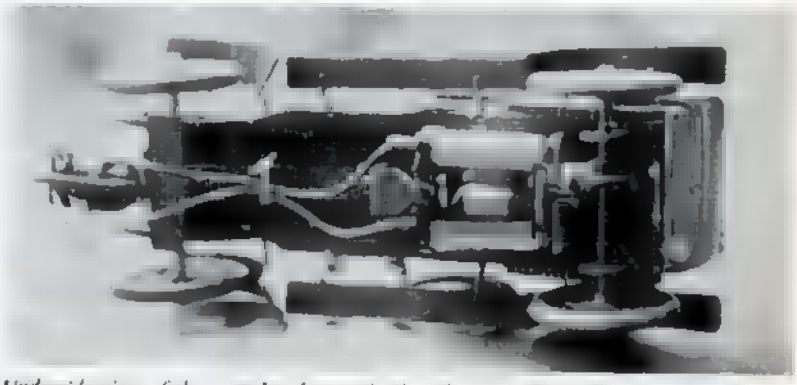
Parts and modifications required for the 1905 Rolls-Royce motorisation; all are keyed to references in the text.

with a 10 BA bolt. The bolt also anchors the front axle.

With the painted body now dry, the rear axle and motor can be fitted. A small round file is used to open slightly the lugs on the rear springs. You will then find that the axle will clip in and rotate freely. The plastic card bearings are cemented to the chassis and inside of the springs, but be careful not to gum up the axle in the process. The rear motor support is now cemented in place using the motor to locate it, and when that is set, the front bracket is positioned, a hole drilled through the floor, and the 10 BA bolt inserted. Leave the nut just finger tight at this stage.

The front axle, also from 3/32 inch rod, is mounted as shown in D. Thin brass or tin is used for the long front bracket sketched at E, and this is anchored by the same 10 BA bolt as secures the front mount of the engine. The front springs are inside the front bracket wheel lugs, and the forward extension will carry guide shoe and pick-up braids. The front wheel bushes will give the correct front track, and the wheels are retained by small washers soldered to the axle with a thin piece of paper between hub and washer to prevent everything being accidentally soldered solid.

The hole for the MRRC guide shoe—also available separately from stockists—is approximately 5/16 inch in front of the axle. The guide is retained by the nylon collar supplied and both the brass spigot and collar are reduced in length. The connecting wires soldered to the braids are held in contact with the motor terminals by small lengths of rubber sleeving. You will find that a slight set is needed to both projections of the front axle bracket. The rear extension must lie flat against the chassis and the front extension must be suitably bent to fit in the slot and allow the front wheels to contact the track.



Underside view of the completed motorisation shows the run of the leads from motor to pick-up. Note how rubber sleeving joins them to the motor contact. The long front guide/axle holder extension is clearly visible.

With the chassis finished, the car can be completed following the kit instructions. As a competition car, the real thing would have very probably had its mudguards and running board removed so they could be omitted from the model if desired.

A point to bear in mind with regard to these veteran racers is that they are comparatively fragile in model form—another argument in favour of omitting mudguards—and they will not take kindly to leaving the track at high speed and descending to floor level! If your model tends to run off the slot because of its high speed, you'll find that an additional resistance inserted in the controller lead will bring it down to a more reasonable top speed.

SAFETY FIRST

THE Road Safety Department of Glasgow Corporation have recently built a demonstration layout to teach the elements of roadcraft to children, utilising Airfix motor racing components for the purpose. The layout (*shown below*) is basically a normal figure of eight with a modified cross-over section.

Miniature road signs have been erected in the appropriate places signifying 'bend', 'cross-roads', etc, and youngsters can take turns in driving Airfix Ford Cortinas round the circuit. All the scenic features are also from Airfix kits. Anyone living in the Glasgow area should look out for it at local exhibitions.

NEWS FROM IPMS

MEMBERS who attended the London Area Branch meeting on June 30 were privileged to see some extremely interesting aviation films shown by Eddie Creek. These films, kindly loaned by Gruppe 66, included fascinating shots of aircraft participating in the 1928 RAF Display at Hendon. These contrasted strongly with the Me 262 and Gloster E28/39 shown in other films.

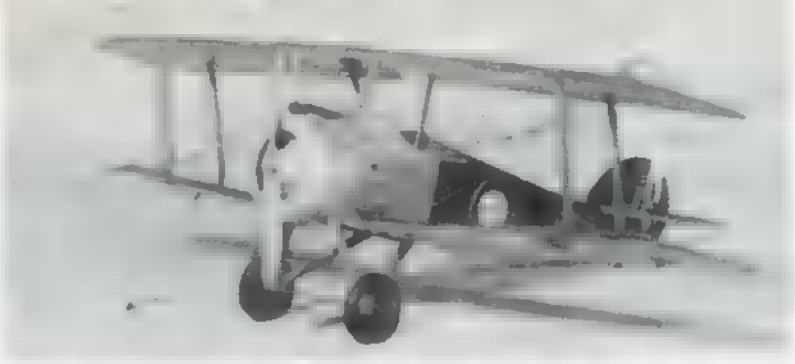
The next London Area Meeting will be held on July 28 at St Marks Church Hall, Balderton Street, W1.

Our Hon Sec Douglas Wolton represented IPMS at the Annual Southampton Show in July. This was due to the generosity of the Southampton and District Model Engineering Society who made space available. Although, at present no Southampton Branch exists, Doug hopes that sufficient local interest was aroused to change this.

The next meeting of the North East Area Branch will be on August 6 at the Wideopen Community Centre Hall, Wideopen, Gosforth, Newcastle upon Tyne.—*L.G.V.*

AS many readers were quick to point out, we gave an incorrect price for the Trevithick locomotive kit released last month. The price is, in fact, 11s 6d.

When mentioning the prize-giving for the Austrian Airfix Motor Racing Competition in our May issue, we also omitted to mention that the Airfix agents for Austria, Berrick Brothers Handelsges MBH, were instrumental in the donation of the Steyr Puch car which formed first prize.



This Sopwith Camel to 1:24 scale is made mainly from cardboard and is a classic example from the Aeromodels range of the 'thirties in the author's collection.

The Aeromodels series

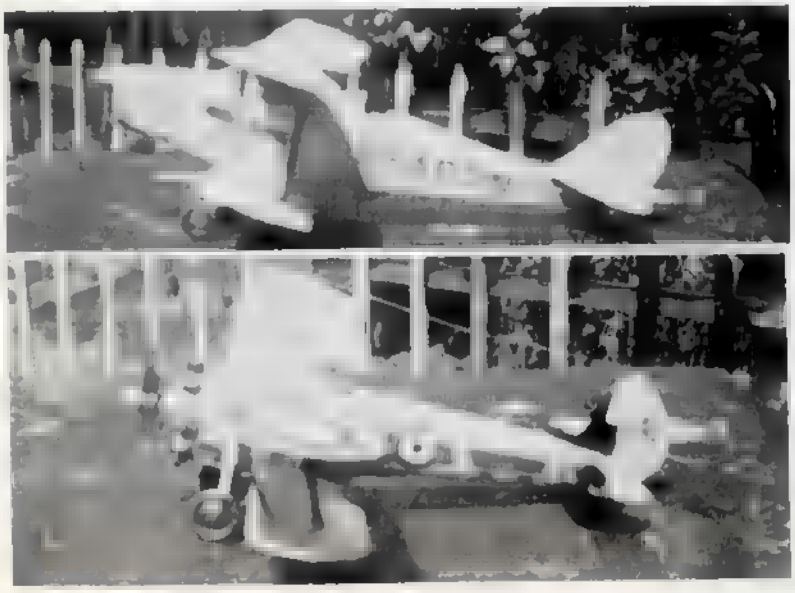
FRED HENDERSON RECALLS SOME MORE FAMOUS PRE-WAR KITS

RECENT correspondence in AIRFIX magazine on the subject of Skybird kits has brought to mind another pre-war series of non-flying scale models, produced by Aeromodels in Cheshire. The original Aeromodels series, which first appeared around 1934 were in 1:24 scale and were mainly constructed in card of various thicknesses.

Fuselages were built up on bulkheads and formers whilst wings and tail surfaces had thick cardboard ribs. The covering material was thinner card. Ribs and spars were represented on the flying surfaces by ruling from the inside with a hard pencil, the printed lines having first been transferred by means of carbon paper. Cork sheet, ¼ inch thick, was used to stiffen the structure at points where struts and other items were attached and 1/16 inch plywood stiffeners were used to strengthen the wing spars at the centre section. Struts were of sheet metal and had to be cut out and formed into shape around pins which provided the attachment when pushed into the cork stiffeners. Wheels were turned from hardwood and airscrews had to be carved from hardwood blanks.

The degree of accuracy of the printed card parts was extremely high and construction was very interesting, although taking much longer than is normally required for kits nowadays. Perhaps that was just as well because the number of ½ inch scale models which one could build was somewhat limited by the storage space required. No decals were provided but the markings were printed on the card parts and in such a large scale, hand painting did not present a very difficult task. The first kit produced was of the DH60 Gipsy Moth and succeeding types included the Bristol Bulldog, Gloster Gauntlet, Hawker Hart, Sopwith Camel, Comper Swift, Supermarine S.6B, DH80 Puss Moth, DH83 Fox Moth, and DH84 Dragon. Most kits were priced from 2s 6d to 5s. The civil aircraft, where applicable, had glazed windows and opening doors, with fitted cabin interiors and the largest of them, the Dragon, was a very impressive model indeed, with a wing span of almost two feet. The storage problem was somewhat relieved by the provision of folding wings where appropriate to the prototype. Radial and rotary engines for the military aircraft were built from dowel, paper, thread and pins around a turned wooden crankcase and were most effective when completed although requiring rather a lot of patience during construction. The instruction sheets were very comprehensive and as well as having step by step illustrations, included, in most cases, a full-size three-view general arrangement drawing.

Below: *Two more 1:24 scale Aeromodels built by Fred Henderson were the Fox Moth and the Bristol Bulldog. Cylinders on the latter were made from thread round dowel!*

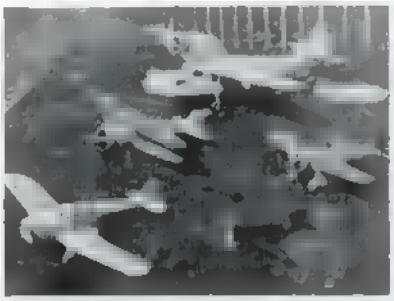


Some years after the inception of the 1:24 scale models, a complementary series in 1:48 scale was produced, using the same constructional methods but they were never quite as successful as the larger scale, although still making very attractive models.

Going back even further than Aeromodels, there was a series of flying scale models (flying capability very limited) by a firm called Appleby and they seemed quite attractive at the time. The only one which comes to mind at present is the Bristol Lucifer biplane. The date would have been around 1929 in my early modelling days, so recollections are somewhat hazy. Construction

was of printed, coloured card and they presented a reasonable representation of the prototype.

Another series which is well worth recalling was produced in the United States of America by a firm called Cleveland. Again the scale was 1:24 and the list of available kits was very extensive, covering such diverse types as the Lockheed Electra transport and the Howard Ike racer. Perhaps the most attractive models were those of the fighters of the period, such as the Boeing P-12/F4B and the Curtiss P-6E. Construction was of balsa wood with paper covering, and the models could be built in two versions, either a flying replica, with enlarged airscrew and tail surfaces, or a true scale exhibition model. For a flying model the structure was simplified to save weight but for an exhibition model a virtually complete structure was provided with the correct number of ribs in the wings and stringers in the fuselage. The balsa used was of a very high quality and the many small and intricate parts were clearly printed on the wood sheets. Wing ribs were mostly printed on 1/32 inch sheet, whilst thicker material was used for some parts. Construction time was considerable but the resulting model was a joy to behold.



Above: *This group of 1:48 scale models includes a Fairchild 91 (at rear), a Boeing 'Peashooter', Howard Ike, and Boeing F4B, all from Aircraft kits, and a Percival Vega Gull from a 1:48 scale Aeromodel kit.*

Other non-flying scale models produced in America in the 1930s were mostly of the carved balsa variety and there were plenty of them, produced by such firms as Aircraft and Hawk (the latter still very active indeed in plastic kits). The popular scale was 1:48 as it is with most American made kits today. The kits were crude by present day standards but very nice models could be produced with reasonable skill and care.

Recalling these model kits of yesteryear is most interesting and although they could scarcely bear comparison with the present day plastic masterpieces which are regularly presented for our delight, there was an enormous amount of pleasure to be had from wielding the old razor blade and sandpaper to produce a model which, although it probably fell far short of perfection, was very nearly 'all your own work'.

German Turret Numbers

Explained by Axel Duckert

'PANZER Dietel, Panzer am weitesten rechts-400.' This warning given by a German unit commander to one of his tanks using the name of the tank commander as a call signal was only possible because of the numbering system used by the German Wehrmacht. These numbers were painted on turret sides and back and, where a stowage bin was carried, on the back of the bin. They enabled the unit commander to pick out the specific tank he wanted to direct, pick it out from the dozens of similar tanks milling around amidst dust clouds and gun smoke.

The system used was very simple, it consisted of three digits of which the first signified the Kompanie (squadron), the second the Zug (troop) and the third the position of the tank in the Zug. Sometimes only the two last numbers (or even the last number only) were carried. Tank 432 would thus be the second tank in the third Zug in the fourth Kompanie. This same tank could also be marked 32 or just plain 2. So much for the fighting tanks. The Befehls-Panzer (command tanks) of the regiment or the Abteilung (battalion) carried a large R for Regiment and a I or II for first or second Abteilung. The signs were followed by a number (in most cases R01 for regimental commander) but could be found sometimes without any numbers at all.

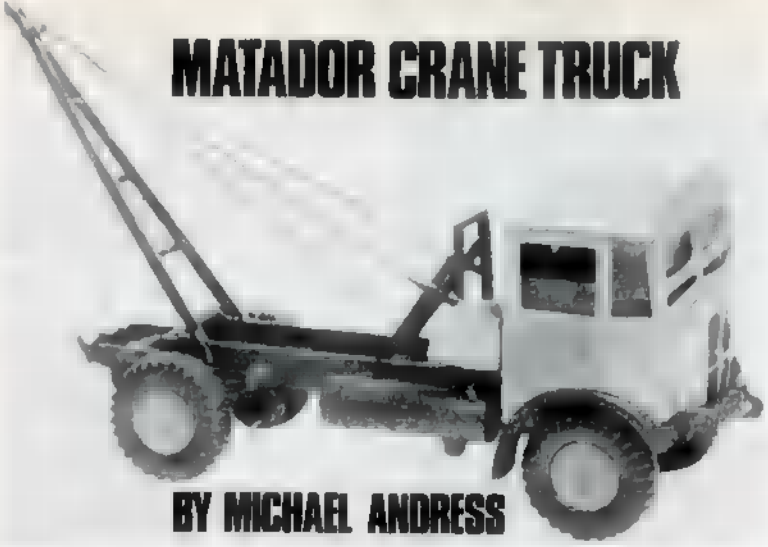
This system was used for regular units in the Panzer Division as well as for independent units. Panzer Grenadier Divisions (armoured infantry) had their tank section organised in their tenth Kompanie and they carried a 10 before their Zug position, like 1022 for the second tank in the second Zug in a PzGreDiv. It follows that this system got a little mixed up when units were re-organised or re-equipped with new tanks in battle. Sometimes the new number was painted on top of the old number, and a good deal of pictorial evidence of this is available.

These numbers were used for the first time in the attack on Poland in 1939. For this campaign the tanks carried a small black plate with the numbers in white positioned on the mudguard just under the turret. In 1940 the large turret numbers were introduced, some plain white, others with red as the basic colour with white outline. It was not uncommon for tanks in the French campaign to carry the plate on the mudguard and the turret numbers. Later in the war the red numbers were phased out in favour of black with white outline. After the dark yellow basic tank colour became common from 1943 it was not rare to see numbers which only had a black outline, the centre of the numbers being the colour of the tank.

To check this system look for photos of the Panzerkampfwagen IV carrying the 7.5 cm L/24 KwK (short version) and you will find that most of them carry a turret number beginning with a 4 or an 8. The reason for this is that the organisation at that time placed the Panzerkampfwagen IV in the heavy Kompanien in each of the two Abteilungen, each Abteilung having four Kompanien.

As most readers will know, nearly all German tanks carried a small black cross with white outline on the superstructure side. In the Polish campaign they often carried a white cross on the mantlet, and late in the war some King Tigers had small black crosses on the turret, but these were exceptions to the rule. Only Beutefahrzeugen (captured enemy vehicles) carried the large black cross with white outline on the turret for easy identification. If making a mixed unit of Panzerkampfwagen IV and captured T-34s, place the small cross on the superstructure side on the Pz IV and the large cross on the T-34 turret.

MATADOR CRANE TRUCK



BY MICHAEL ANDRESS

THE prototype for my latest Airfix AEC Matador conversion is quite common in lumber yards where it is used as a mobile crane for moving wood and loading timber lorries or wagons. It's a very suitable model subject because many model railway layouts have a site where such a vehicle is most appropriate. It is very simple to make and the built-up parts, such as the jib and its bracing wires are effective in model form.

I used plastic sheet of various thicknesses for the extra parts and Airfix liquid cement for the fixing of all components. I painted most parts before or during assembly. My colour scheme choice was matt grey for the cab, tool box and hubs; silver for the radiator and headlight chrome; and matt black for all other parts, including the inside of the cab, though the choice is yours in this respect.

The Chassis: This is built up exactly as described in the kit instructions. Remove any flash on the moulded parts before assembly using a modelling knife or small file. The wheels can be added at this stage and held in place by cementing the hubs in position.

The Cab: Trim off the two ridges and the projecting flange around the circular opening on the top of the roof, using a sharp modelling knife. Use a small file and fine sandpaper for final smoothing off. Cover the roof with a piece of thick paper—I used a textured paper to represent canvas. The paper can be accurately trimmed to size after cementing and lightly sanded at the edges. I then made up the cab as in the kit instructions but with the rear window opening cut out and with transparent material glued behind all the window openings. I left the 'windows' in the cab doors half open as can be seen in the photos.

The small tool-box fitted to the back of the cab is built up of plastic sheet 9 mm wide, 7 mm long, 5 mm deep in front, and 3.5 mm deep at rear. It is easier to assemble if you add the front, back, and sides to the firm base which helps keep everything square. The lid is fitted last and overlaps a little at the front and sides but must be flush with the back so the box can be glued to the cab back. The tool-box can now be fixed to the back of the cab on the right hand side of the vehicle and with the bottom of the box 5 mm above the bottom edge of the cab back.

Below: *The original vehicle on which this conversion is based.*
Bottom: *Rear view of the finished model.*

The Crane Parts: Cut two 1 mm wide strips of 40 thou thick plastic sheet 43 mm long, with a third piece 11 mm long. Glue the two longer strips on edge, one on top of each chassis girder with the front end immediately behind the position the back of the cab will occupy in the completed model. Cement the shorter strip across the back ends of the other two, bridging the two main chassis girders. The jib and the structure nearer the front of the vehicle which anchors the guy wires bracing the jib are built up next.

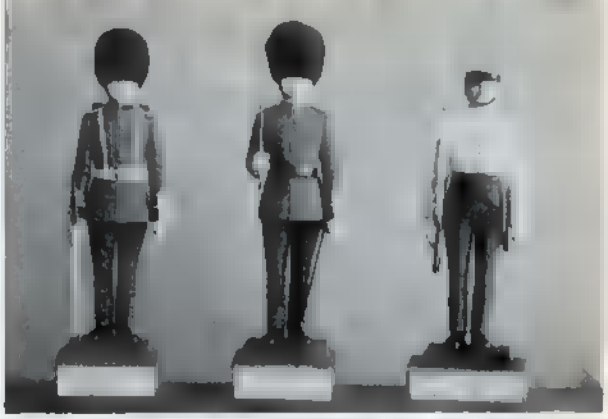
For the guy wire anchoring structure, cut two uprights 15 mm long with the top end cut at a slight backward slope, and a cross piece 8 mm long to fit across the top. Glue the uprights in position so that their front edges are 8 mm behind the front ends of the two beams that have been fitted on to the main chassis girders, and with the uprights truly vertical. Before the cement sets firmly, slope the uprights slighly inwards and fit the 8 mm long cross-piece on top of their upper ends to hold them in position. Cut two further strips 15 mm long and trim the ends so that these diagonal braces will fit neatly between the uprights and the horizontal base beams, with the top ends of the diagonals 3 mm below the top of the uprights. Cut two pieces of 10 thou plastic sheet 5 mm by 1 mm and glue them in place as in the photos —to these will be attached the guy wires which support the jib.

The jib is built up as shown in the plan using 1 mm by ¼ mm strips of plastic sheet except for the small pieces of 1 mm wide strip of 10 thou material holding the pulley and forming the brackets for attachment of the guy wires. The pulley is a segment (two ridges and the hollow between) cut from the grooved and ridged part of kit part 58 or 59. The jib is attached to the beams on the chassis girders so that its base is directly above the rear axle. Add a small strip of 1 mm wide 10 thou plastic across the outer surface of each join. While the cement was drying I supported the jib at the correct angle (45 degrees), using a paint jar of suit-

Continued on page 451

MORE GUARDS CONVERSIONS

By J. S. R. Mead



Above: *Three attractive variations on the basic Airfix Guards figure all described in this article.*

CONVERSION possibilities with the Airfix 1:12 scale Coldstream Guards figure are almost endless and it is possible to adapt the basic kit to depict almost the whole development of the present day uniform. This month's article spans the last hundred years or so.

The white shell jacket was worn by the Foot Guards in drill order about 1850, and is thought to have originated in the sleeved waistcoats formerly worn for fatigue duties. The right-hand figure in the heading photograph shows a sergeant of the Coldstream Guards wearing this dress, and the black forage cap of the period, which is similar in appearance to the Broderick cap of the early part of the twentieth century. Sergeants' caps had a gold band and those of lower ranks red.

The figure is constructed from the Coldstream kit components, and the tops of the legs should be filled and then cemented to the tunic to achieve the position shown. When thoroughly dry the tunic below the waist must be carefully filed down to form the top of the trousers. The holes which occur in the process can be filled with small pieces of scrap plastic and coated with plastic putty to the correct contour. The forage cap is shaped from a small block of balsa wood.

Both belts are fashioned from strips of paper. That over the right shoulder carries the bayonet scabard at the left hip, whilst the ammunition pouch is carried on the other. The jacket, cross belt, gloves and musket sling are white; the trousers blue with a red stripe and the waist sash crimson. The right hand may need a little treatment with the fine file in order to grasp the musket, which can be adapted by filing from the rifle in the kit or, alternatively, made from scratch in scrap plastic, using the full size drawing as a guide.

The centre figure represents an officer of the Irish Guards between the wars. The legs are filed, ■ with the previous model, to give this pose. The 'carry' position of the right arm is achieved by sawing through at the elbow and filing each part to form a right-angle. The fingers of the right hand must also be bent to fit the hilt of the sword. The scabard in full dress is suspended from the waist belt under the tunic by two gold laced slings (again made from narrow strips of paper).

The painting instructions supplied with the kit also apply to this model, with the exception of the four bars of lace on each sleeve and skirt flap. These are grouped towards the centre and are painted gold, not white as with other ranks. The plume is blue.

The left-hand figure depicts a Welsh Guardsman in the new guard order introduced in 1936. The white braces cross on the back with the folded cape worn on the shoulders. Strips of paper form the braces and the cape is easily made from a flat block of balsa wood. The right arm and both legs require filing in order that

Below: *An Irish Guards field officer of 1900 (right) and Coldstream Guards field officer of post-1902.*

the figure is represented standing to attention, though you could retain the 'at ease' position of the kit guardsman. A new 'long' bayonet is required for this period as drawn in my last article.

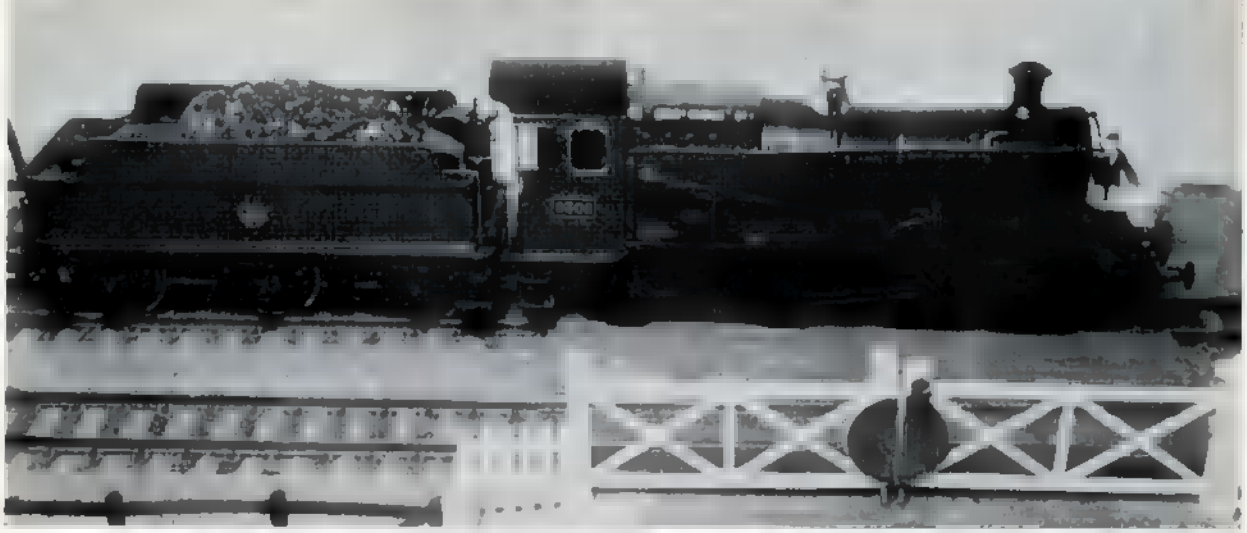
The Welsh Guards have ten buttons in two groups of five on the front of the tunic and five bars of equally spaced lace on each sleeve and skirt flap. The plume, worn on the left of the bearskin, is white with a green band. The painting instructions should otherwise be adhered to. As mentioned in previous articles, these small modifications can be carried out by filing off existing detail from the mouldings and adding the new buttons, etc, from tiny blobs of plastic putty.

In 1902, certain changes were made in the full dress of Guards Field Officers, and the next two models illustrate the points of difference. The right hand figure shows the Irish Guards uniform of about 1900. It is constructed from the tunic, legs, boots and sword from the Life Guard kit, with the head, arms and hands of the Coldstream Guardsman.

The right arm requires a little treatment with the file in order that it should hang more or less vertically. The legs should now be constructed and the small file used to remove as much of the 'wings' and tops of the boots as possible. The next step is to cement the leg assembly to the body. It may be necessary to use the file before cementing, to ensure an upright posture. Allow to dry, and build up the upper part of the legs, to cover all irregularities and to give a natural appearance.

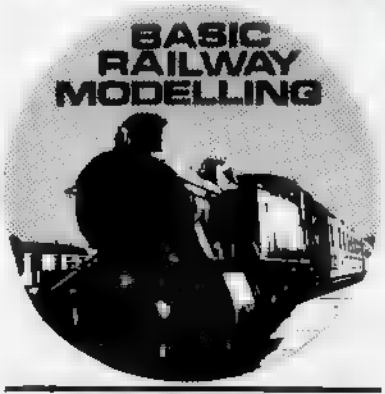
The sword hilt should be removed from the blade and cemented to the top of the scabard. The sabretache (correct size illustrated) can be shaped from the Life Guard trumpet banner. It is gloss black in colour and is

Continued on page 470



THE 93XX MOGUL

ANOTHER VARIATION ON A RECENT CONVERSION



BY **NORMAN SIMMONS**

Heading picture: *Yet another conversion possibility by combining the Airfix Prairie tank and* City of Truro *kits is the very handsome 93XX class of Mogul which has a side-window cab and several detail differences.*

THE Mogul article in the May issue made no mention of the 20 locomotives, numbers 9300-19, built in 1932. These were the last GWR 2-6-0s to be built and there were points of difference about their design, the most noticeable being the side window cab, which warrants a separate article. The differences are in detail rather than in basic design so reference to the May [illegible] will be needed for a description of the main construction features.

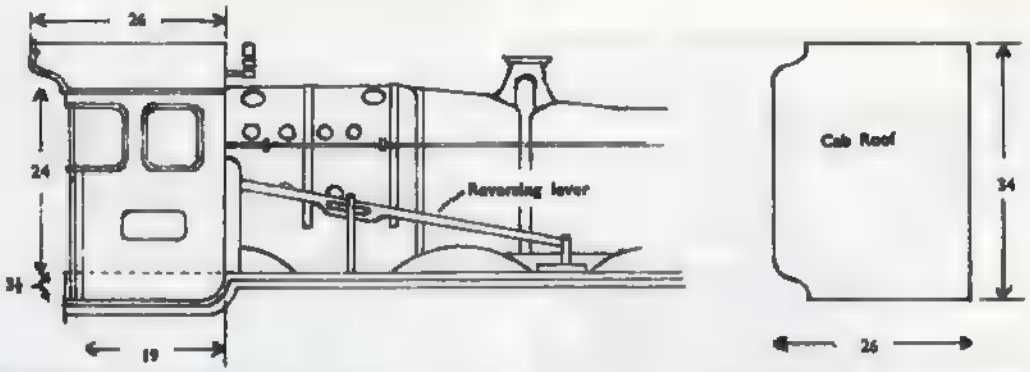
The front piston valve covers are prominent on the 93XX class so these should not be removed. The curved dropped platform or footplate in front of the cylinders is further forward. To achieve this the shaded portion to be removed between parts [illegible] and C of the footplate (see plan view in the May issue) should only be 2.5 mm, not 5.5 mm as shown for the 43XX. There is no need to cut and separate the front end of the footplate into parts A and B but the buffer beam itself should be thickened by the addition of a strip of 40 thou plastic card. This is because the buffer beams on the 93XXs were modified by fitting a heavy casting behind, the object being to transfer weight to the front pony truck thereby reducing the load [illegible] the front coupled wheels and minimising tyre wear on these parts.

In Cornwall in the late 'twenties tyre wear was proving very serious due to the abundant curves and many 2-6-0s in the 53XX series had their front ends so modified and they were renumbered in the 83XX series. Apparently these problems were overcome by other means since the 83XX were rebuilt back to 53XX in the mid-'forties. The 93XX series were themselves rebuilt in the three years beginning in 1956 and on rebuilding, numbers 9300-19 became 7322-41.

So once again one needs to be careful when choosing a number for these locomotives to get the period correct. Actually, when it comes to the availability of engraved number plates, the 'Kings Cross' range produced by the Model Railway (Mfg) Co Ltd, contains only one 93XX, number 9302. This locomotive [illegible] built in February 1932 and renumbered 7324 in February 1957—a useful working span of 25 years. According to my records it was shedded at Paddington most of this time.

All the 93XXs were built with outside steam pipes and in the model these are taken from the Prairie Tank kit and cut from an assembled smoke box unit, parts 19 and 19A. The smoke box of the Prairie Tank, which had a GWR Type 2 boiler is of course smaller in diameter than the Type 4 boiler in the *City of Truro* and which we are using for this conversion. By judicious carving, filing and sandpapering of both the outside of the *City* smoke box and the inside of the Prairie smoke box saddle steam pipe assembly (the latter by using fine sandpaper wrapped around [illegible] length of ¾ inch wooden dowel) I [illegible] able to get them to fit perfectly. The square projection below the smoke box saddle will need to be trimmed to size to fit the restricted opening in the footplate and this should be done so that the steam pipes line up with the centre of the cylinders and the replacement chimney which, [illegible] in the 43XX conversion, I recommend you purchase from Ks.

In fitting the boiler to the chassis [illegible] useful dimension to have which I didn't mention in my previous article is the pitch of the boiler, that is the distance of the boiler centre line above rail level. For the majority of the 43XX Class this was 8 feet 2½ inches but in the case of the 93XX series this was 8 feet 2, [illegible] inches—a difference which is hardly likely to worry us in 4 mm scale!



Top: *Full-size working drawing gives all necessary details for the 93XX conversion, especially the new cab and centre splasher. Dimensions in millimetres. For other drawings and references—including the chassis construction—see our May and June, 1967, issues.* **Above, left:** *Contrast in cabs. The 93XX is on the left and the 43XX on the right.* **Above, right:** *Significant external changes are the short centre splasher and outside steam pipes on the 93XX, shown left.*

Also the offside centre splasher ■ the 93XX is the same shape as the front and rear splashers, not elongated as on most of the other 2-6-0s.

I have prepared a drawing of the side window cab and the extended roof. This calls for no special problems during construction except that in order to hold the larger roof area in shape it is even more important to make this a lamination of two pieces of thin plastic card cemented together rather than a single piece of thick card. I used wire for the handrail but thin plastic sprue heated and stretched would probably have made the job easier. I found it difficult drilling the number 77 holes to take the 26 SWG wire exactly in line and to keep the wire dead straight.

Another point of difference with the 93XXs is the screw reversing gear. All the other 2-6-0s had lever reverse and I didn't bother to feature this on my earlier model as it is not terribly prominent. On the 93XXs, however, the reversing lever is high up on the offside of the firebox and there is a prominent box forward of the cab spectacle plate. The box was made from two pieces of 40 thou plastic card, 15 mm×3 mm, cemented together and with their visible edges and corners rounded by file and sandpaper. There is a small square moulded projection to the rear offside of the Airfix *City of Truro* firebox and this very conveniently forms a ready placed mounting point for the cab end of the reversing lever, which by the way I cut from 20 thou plastic card. A short, 3 mm, vertical extension to the lever was cemented at the forward end and this in turn was cemented to a square piece of 40 thou plastic card cemented to the footplate between the centre and front splasher. It is hoped the drawing and photographs will clarify all this.

The final detail point concerns the 'wing' plates (Fig 6 in the May issue). These are thicker and not so high on the 93XX. They were built up from two pieces of 40 thou plastic card cemented together, filed and sandpapered to shape, with a strip of 10 thou card added round the edge. Thin strips of 10 thou plastic card were also used to line the edges of the cab windows and cab roof. After painting the locomotive in GWR green, the lining round the cab window was picked out in brass paint.

Keep any bits you have left over—you will probably need them later on for future conversions.

Matador — continued

able size, and strengthened the joins by glueing a small block of scrap plastic behind each in the angles formed between the jib and the base beams. One of the photos shows the model at this stage of construction and will make the foregoing instructions easier to follow.

The guy wires are black thread cemented in place. Try to get them taut as any slackness spoils the effect

Full-size plan for crane jib.

—they are supposed to be taking some of the weight of the jib. The lifting wire is also black thread glued to the under side of the winch drum on the chassis, led round the drum and up over the pulley and then down. You can fit a hook of some sort if you wish, but I find hooks of this size rather difficult to model effectively, so I merely glued the lower end of the thread to the inside of the rear towing hook beam. This gives the impression that the hook is attached to this beam to keep it out of the way while it is not in use.

The cab can now be fixed to the chassis. Add 1 mm thick slices of $\frac{1}{16}$ inch dowel as headlights.

THE CHURCHILL TANK

by Peter Chamberlain

PART 2

DESIGN IMPROVEMENTS

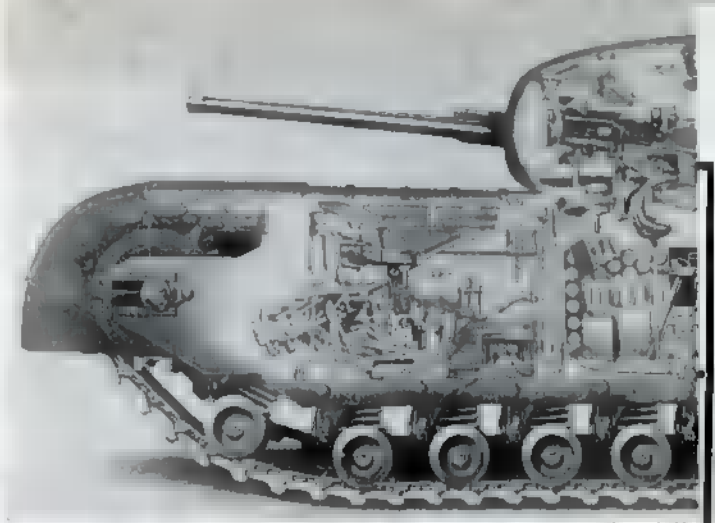
THE service career of the Churchill reflected closely the many changes in War Office tank policy during the 1941-45 period. Several times it came close to being phased out of production, only to be re-instated, modified, or re-armed, following the fortunes of war and consequent re-formulation of requirements.

When Churchill production began in the middle of 1941, the need was for tanks in quantity and to achieve maximum output Vauxhall Motors acted as design and production 'parents'. In addition to Vauxhall, Broom & Wade, Birmingham Railway Carriage, Metro-Cammell, Charles Roberts, Newton Chambers, Gloucester Railway Carriage and Wagon Co, Leyland Motors, Dennis Bros, Harland and Wolff, and Beyer Peacock, all built Churchills, and dozens of light engineering firms made components; at the peak of production more than 600 firms were involved. From the beginning, a number of design faults revealed themselves. In particular the clutch gave trouble and many other components had a tendency to wear out after only a short life.

While faults were remedied on the production line, it was not possible to incorporate modifications in the earlier vehicles until sufficient Churchills had been produced to allow their temporary withdrawal from service. As a temporary measure Vauxhall attached an engineer to tank brigades armed with Churchills and a check was kept on all faults and maintenance problems arising in service. By May, 1942, production reached 191 new vehicles and the first of the older Churchills were withdrawn for 're-working'. No less than 158 modifications to the design were requested by the War Office, including the ironing out of mechanical troubles and the incorporation of improved armour protection.

Among the changes were the adoption of track covers—made in three pieces to simplify removal for maintenance—the addition of *appliqué* armour to the vertical front plate and sides, the addition of stiffeners in the front horns, and the fitting of new side air intakes which had the louvres on top instead of in the sides. This latter allowed the fitting of trunking for wading and obviated the tendency to take in water when fording shallow streams.

The major design change was the elimination of the 3 inch howitzer from the hull front. By virtue of its position it was limited in traverse and field of fire, and the stowage



Anatomy of the Churchill; this ghosted drawing shows the Churchill divided into four distinct compartments, dr

space for the 58 rounds of 3 inch ammunition carried in the vehicle could be utilised more usefully. A 7.92 mm Besa machine gun was therefore installed in place of the 3 inch weapon and vehicles so fitted were designated Churchill Mk II. Some Churchill IIs were built as such while others were 're-work' conversions from Mk Is. An interesting variation, built in small numbers, was the Churchill IICS, a close-support version which simply changed over the gun disposition of the Mk I ■ that the 3 inch howitzer was carried in the turret and the 2 pdr in the hull.

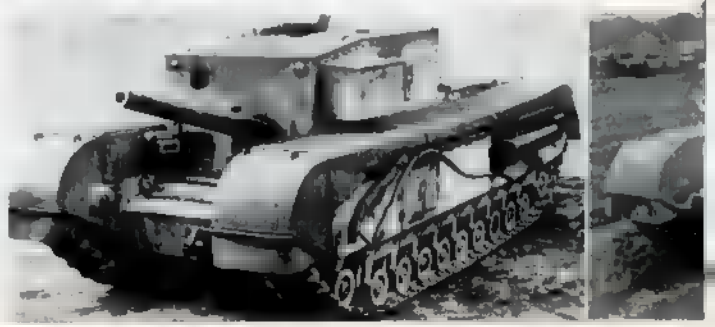
Meanwhile, experience in the desert fighting in the latter part of 1941 led the War Office to decide that 6 pdr guns would need to be mounted in future tanks to combat the weapons then fitted in German tanks. In the case of the Churchill this meant designing a larger turret to accommodate the heavier gun and this led to the Churchill III, prototype of which appeared in March, 1942. The turret was welded and of an entirely different shape and appearance to that of the Mks I and II. It is interesting to compare the armaments of the first three marks:

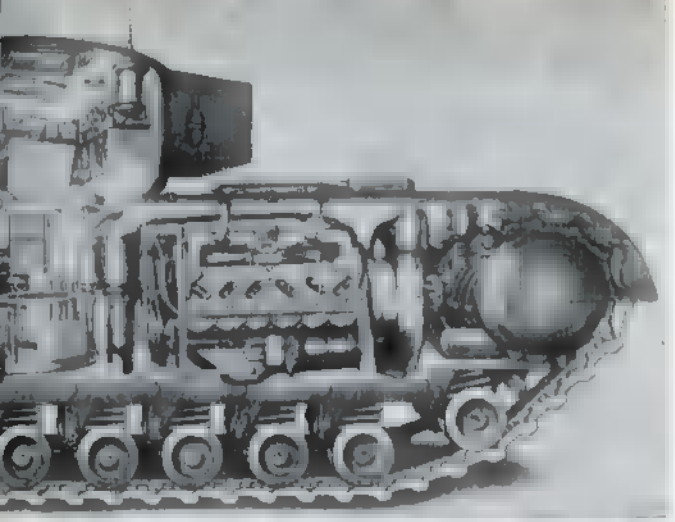
Mk I: One 2 pdr gun Mk 9 or 10A with 150 rounds. Co-axial 7.92 mm Besa machine gun with 4,725 rounds. One 3 inch howitzer with 58 rounds. Cast turret.

Mk II: As above, less the 3 inch howitzer but with 7.92 mm Besa in hull front and total of 6,975 rounds of Besa ammunition. Cast turret.

Mk III: One 6 pdr Mk 5 with 84 rounds. Co-axial 7.92 mm Besa machine gun. One 7.92 mm Besa machine gun in hull front and total of 6,975 rounds of Besa ammunition.

First of many Churchill derivatives, the 3 inch Gun Carrier Mk I, also dates from this early period, and was also influenced by combat experience against the Germans.





V with cast turret and 6 pdr main armament. Note how the hull is ving, fighting, engine, and transmission.

who had made extensive use of SP guns. In September, 1941, the War Office considered the idea of mounting a 3 inch AA gun, which was a high velocity weapon, in a Churchill chassis. As in the StuG III, this would dispense with a turret, with limited traverse for the gun and heavy armour. The 3 inch gun was available in some numbers as this had been replaced as the standard AA weapon by the 3.7 inch gun. A hundred 3 inch guns were put aside for fitting in the Churchill chassis, but this coincided in December, 1941, with the change of policy which led to the concentration on the 6 pdr ■ the standard tank gun. As all available chassis were required for gun tanks, the order for 100 gun carriers was reduced to 24. The type was never used operationally but was most interesting as a design.

BLOODED IN ACTION

Churchill tanks were first used in action during the raid on Dieppe, August 19, 1942. This was the first landing over a enemy-held beach on any large scale in the European conflict and many lessons were learned for the future, particularly in the deployment of armour in amphibious operations. The Churchills taking part were mainly Mk IIIs with a smaller number of Mk Is, and the 14th (Canadian) Calgary Tank Regiment was the unit involved. Thirty vehicles were sent across the Channel in LCTs but only 28 actually landed. All were waterproofed for deep wading with trunking and exhaust stacks, and the leading vehicles carried a primitive form of bobbin to lay a chestnut paling over the shingle and so make a trackway for the following tanks. Three of the Churchills had been fitted with experimental flame-throwing equipment, these being known as Okes. All three were knocked out before they could be used against the enemy.

Of the gun tanks which landed, many were knocked out before they could clear the beaches and only a few vehicles managed to surmount the sea wall and engage the enemy. As a result of this action the Germans were able to acquire and evaluate the Churchill at an early stage in its life. Dieppe taught that specialised armoured vehicles would be required for future landings and such types as the AVRE, the BARV, and the carpet layers stemmed directly from the experiences of the Canadian Churchills in this brave but futile action.

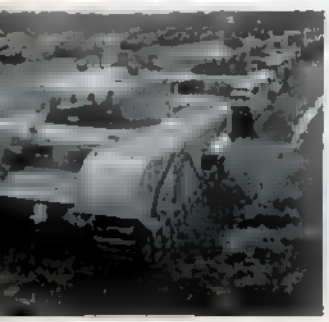
Less well known is the fact that three Churchill IIIs were present at the Battle of Alamein for testing under desert warfare conditions. Whether or not these actually saw action is not recorded. A few Churchill IIs and IIIs were sent to Russia together with Valentines and Matildas in 1942, but do not appear to have been rated very highly by the Red Army. By Soviet standards these vehicles were under-gunned and later in the war they were relegated to acting as escort

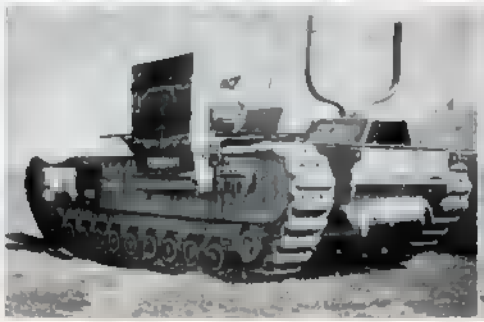
Churchill IIIs ready to move forward on Frendj during the Tunisian campaign. Camouflage is green over sand.

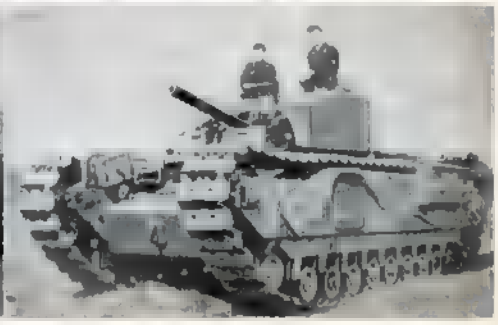
tanks for the SU 152 assault guns.

The Churchill III (together with the Churchill IV) first went into large-scale action with the First Army in Tunisia, in the hands of the 25th Tank Brigade, and later the 21st, in January, 1943. Experience in the Western Desert suggested to the War Office that speed and reliability were more important than heavy armour protection in tank actions. It was thus decided to cease production of the Churchill once the Cromwell became available. In the hilly country of Tunisia, however, where enemy anti-tank guns and tanks once again had the advantage of concealment, the Churchill vindicated itself as a vehicle capable of taking punishment and succeeding in its designed role as an infantry support tank. Appearance of the early Tigers clinched its reprieve and plans were put in hand to provide the Churchill with a heavier armament for the battles that lay ahead.

Below, left to right: *The Churchill 3 inch Gun Carrier. A Churchill II followed by a Mk I. A Churchill III captured at Dieppe showing the wading gear. Churchill III under test by a German crew after capture at Dieppe* (all photos —except last two—courtesy Imperial War Museum).







THE MIRAGE STORY

Fine detail view of Mirage M.5 carrying a typical conventional offensive load.

WHICHEVER direction your sympathy lies in the vexed Arab-Israeli situation, it cannot be disputed that the Israelis conducted their recent campaign with careful thought, skill and tenacity in the face of a well-equipped enemy. When the facts of Israeli strategy eventually reveal themselves, it is certain that brilliant use of air power at a moment unexpected will be seen as instrumental to the shattering defeat of the Egyptian Air Force. Accounts of the battles that have filtered through speak of large groups of Israeli aircraft sweeping low out to sea, outwitting enemy radar cover, and attacking much of his grounded air force from 'the rear'. If this is so, then the Israeli aircraft must have been operating at extreme range and carrying small loads, which they must have deposited with superb accuracy. One thing for sure—the Israelis made excellent use of their French combat aircraft, including the Mirage III. As one of the most potent military aircraft the West possesses, progenitor of an increasing proliferation of strike fighters and interceptors, the Mirage—now used by seven air forces—is an aircraft of which the French are justly proud.

The Mirage stems from a French Air Force requirement for a low-level attack/high altitude interceptor fighter, able to reach 60,000 feet in six minutes. Marcel Dassault chose a delta configuration for the machine proposed and, fitted with two Bristol Siddeley Vipers, this first flew on June 25, 1955. In ■ dive it reached Mach 1.15, and 1.3 in December, 1956, when ■ SEPR 66 rocket engine boosted its power.

A scaled-up version was planned to follow, fitted with Turbomeca Gabizo engines, but these would have conferred insufficient power to attain a Mach 2 rating. Meanwhile data became available on the area rule which heralded the 'waist tightened' aircraft. The project, known as the Mirage II, was abandoned.

Thirty per cent heavier, and powered by a massive SNECMA Atar 101G.1 giving 8,818 lb thrust with afterburner, the Mirage III was next projected. The new version required an entirely new fuselage in which the engine was fed from carefully designed twin intakes. 001, first of around 800 Mirages, took to the air on November 17, 1956, and at the end of January, 1957, reached Mach 1.6 in a dive. Modifications to the geometry of the air intakes was then made, and an Atar 101G.2 providing 9,700 lb thrust with after-burner installed. The maximum level speed rose to Mach 1.65, boosted to 1.8 using a SEPR 66 rocket motor. In this form the aircraft was intended to be an interceptor fighter only.

Development plans proceeded apace now, and the Mirage IIIA multi-purpose aircraft with interchangeable equipment packs for maximum versatility was planned. Ten pre-production aircraft were ordered by the French Air Force each one for the working out of different aspects of the design. Wing area was increased from 312 to 365 sq ft, and a thinned wing section adopted. Later it was decided to give the wing leading edge conical camber. A longer fuselage now accommodated an Atar 09. Mirage IIIA-01 first flew on May 12, 1958, and in October of that year Mach 2 was reached in level flight.

The fifth IIIA was the first built to production standard and resembled the Mirage III-C, the initial variant to enter large scale production, and of which the French Air Force bought 95. Fitted with an Atar 09 B3—optionally with a SEPR 844 rocket motor—the III-C first flew on October 9, 1960, and has served as an all-weather fighter with the 2e and 13e Escadre de Chasse. CSF 'Cyrano 1 bis' radar allows all sector attack with the electro-magnetic headed MATRA 530 missile. Two Sidewinder infra-red missiles may be carried, and the 2 × 30 mm cannon can be replaced by extra fuel. An AS-30 missile can alternatively be carried beneath the belly, and under the wings can be slung long-range fuel tanks and/or 2 × 18 or 2 × 36 rocket pods. The long-range tanks may be of 138, 286 or 374 imp gallons capacity. The various versions of the Mirage III-C can also carry up to 10 bombs or 4 napalm tanks. A further alternative is to carry 2 × 1,000 lb bombs beneath the fuselage and two more under the wings.

Seventy-two Mirage III-CJ were delivered to Israel, but initially they did not carry missiles. No 2 Sqn of the South African Air Force received 16 III-CZs carrying Nord AS-20 missiles for ground attack use. Two IIIs were bought by the Swiss Air Force as pattern aircraft for an intended force of 80 Mirages, the high cost of which eventually forced the Swiss to decide upon 36 later in 1964. The Mirage III-S is now under licence production in Switzer-

Left to right: *Mirage III-C No 9 with rocket pods and belly bomb. Mirage III-B No 206. Mirage III-R No 302.*

land at the Fabriqué Fédérale d'Avions. Their machines have strengthened undercarriages and can carry Hughes HM55 or HM58 Falcon missiles, and are powered by an Atar 09 C3. The Swiss plan to have three Mirage squadrons, the III-S being due to enter unit service late in 1967 and a reconnaissance version, the III-RS, in the Spring of 1969.

On October 21, 1959, the Mirage III-B two-seater first flew, and 26 have been supplied to the French Air Force. No radar or armament is usually fitted, but the machines can carry the same offensive load as the III-C. Forward fuselage is lengthened by 23.6 inches to 45 ft 9¼ inches. Two III-BS have been ordered by the Swiss and three III-BZ by South Africa. All of the aircraft so far mentioned have natural metal finish with black numbers/letters.

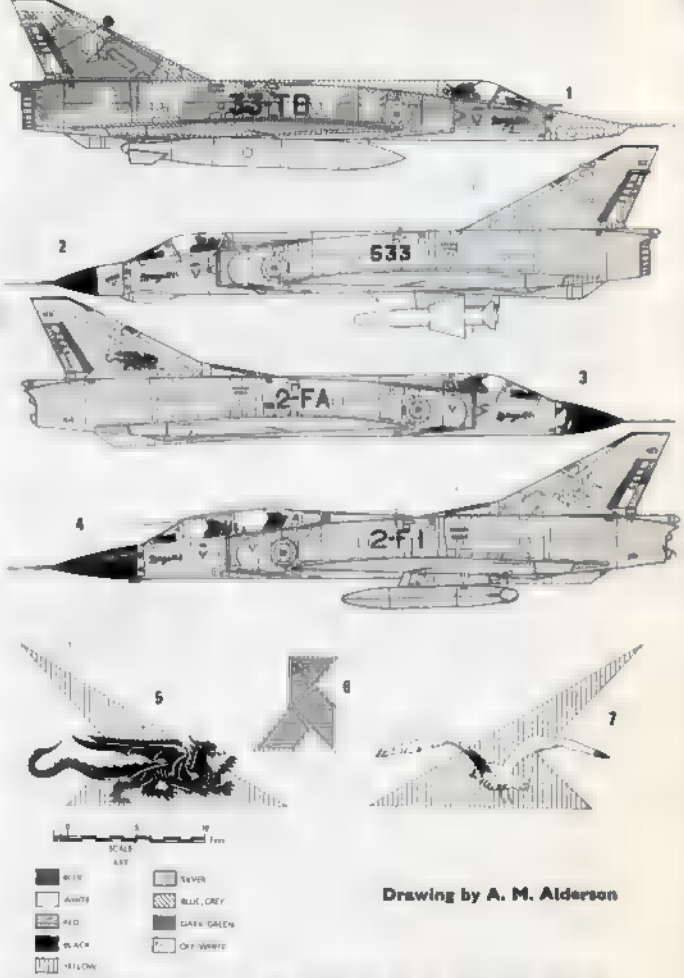
For the 33 Escadre de Rec Tact the French Air Force ordered 50 reconnaissance Mirage III-R aircraft, fitted with Atar 9C engines. These, for low and medium reconnaissance tasks were based upon the III-C and carry up to five Omera 31 cameras in a specially modified nose. They can operate by day and, using flares carried on under-wing racks, can take night photographs. Two 30 mm cannon are retained and the wing racks permit loads similar to those of the III-C, which can be delivered using the LABS system. 18 of the Swiss III-RS may be completed. The French machines are camouflaged dark green and dark blue-grey with silver undersurfaces.

Orders for the Mirage III currently exceed 700 machines and it remains in production. 470 had been delivered by

Jet-assisted take off for Mirage III-S J-2301 of the Swiss Air Force. Aircraft has natural finish with red trim to intakes. Tail marking is white cross on red disc.

the start of this year, and production is at the rate of about ten a month.

On April 5, 1961, the prototype Mirage III-E first flew and was followed by two more prototypes. It was designed as a tactical nuclear strike aircraft, and carries highly sophisticated equipment including Cyrano II. For the French Air Force 130 have been ordered, to equip six squadrons of Nos 1, 4 and 9 Escadres. The first production aircraft flew on January 14, 1964. A very noticeable external feature of the III-E is that its cockpit has been moved forward of the engine air intakes, and beneath the nose can be seen a bulge housing the Doppler radar. Fuselage length has been increased by 11.8 inches to 46 ft 2½ inches overall. Undercarriage legs have been raked forward to retract clear of the large central stores carried on two pylons. Powered by an Atar 09 C3 (13,625 lb thrust with after-burner) this is the heaviest version of the Mirage strike aircraft so far, and the RAAF is receiving it as the Mirage III-O, licence built in Australia. The III-RD is the photo-recce version, the III-EZ a variant for South Africa and the III-RZ the South African reconnaissance edition.



Drawing by A. M. Alderson

Mirage colour schemes: *(1) Mirage III-R No 350, 33-TB of 33 Escadre de Rec Tact. '350' appears on nosewheel door. (2) Mirage III-B No 533 with no numbering on nosewheel doors. (3) Mirage IH-C No 39 of 2 Escadre de Chasse, June 1967. (4) Mirage III-B No 209 of 2 Escadre de Chasse. 2-FA had 'A' repeated on its nosewheel door in black and 2-FI had 'I'. (5) Dragon motif applied to starboard side of fins of aircraft 2-FA and 2-FI. (6) Emblem of 33 Escadre de Rec Tact as applied to fin of aircraft 33-TB. Note that this aircraft had a slightly lighter grey strip along its wing leading edge, nose, tail, and engines, indicated by reverse slope of toning on drawing 1. (7) Seagull motif applied to port side of fins of aircraft 2-FA and 2-FI.*

Details of the Mirage III-E released at the recent Paris Show give it a take-off weight of from 20,940 to 29,760 lb, a top speed at ground level of nearly 870 mph and a maximum speed of 1,430 mph with a typical heavy load. Using rocket motor assistance it can reach 59,000 ft in 6 minutes 10 seconds.

Next in line, the Mirage IV nuclear armed strategic bomber was an entirely new development, a scaled up version of the Mirage for the French Force de Frappes. The modifications were such, however, to render it an entirely new design and it does not really fit into this story concerned as it is with the Mirage fighters and fighter-bombers.

Continuation of the basic Mirage line rests with the Mirage 5, a simplified version of the III-E. The change-over has been achieved by incorporating a less sophisticated

Continued on next page

electronic system to ease maintenance and lower unit costs. Fuel load has been increased by 36%, since removal of electronic gear behind the pilot's seat provided the room for extra tankage. Armament varies according to need, but a typical configuration comprises 2 × 30 mm cannon and seven basic attachment points for external loads. Up to 14 bombs may be carried, extra tanks, infra-red AAMs, rocket pods, etc. At high altitudes the Mirage 5 exceeds Mach 2, and it can reach Mach 1.5 at very low levels. It is probably the cheapest low-level Mach 2 combat aircraft, and especially suited to visual attacks. Fifty are on order —and rumour says that the Israeli Air Force has fifty on order.

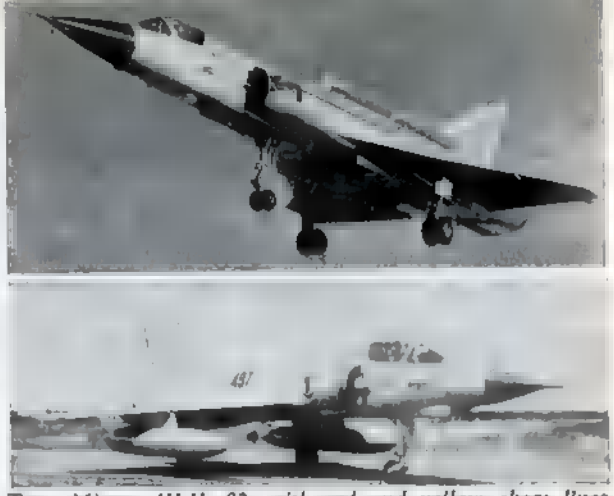
THE NEW MIRAGE

Now, a new line of Mirages has been developed, the Mirage F series which already exists as a small family and seems likely to have wide-reaching repercussions on the European aviation scene. They have stemmed from two basic operational considerations (1) to increase autonomy and double the aircraft's range and (2) decrease its dependence upon minimum support installations. What is more the new series is being developed alongside a variable geometry version, the G Series upon which France undoubtedly pins her hopes for a cheap VG fighter and felt confident enough to withdraw from the hoped for Anglo-French VG project, without which the British aircraft industry is going to be in a desperate plight.

A major break-away from the earlier Mirage series is the incorporation in the F and G of high placed swept wings with high lifting devices in place of the long-accepted delta. The tailplane is low set. Low pressure tyres on the twin wheels allow the use of emergency landing fields. All-round improvements in construction are also being made.

The Mirage F2, a prototype of which was ordered by the French Air Force, came first. It is a two-seater designed for low-level deep penetration multi-mission sorties, and has ■ TF-306 19,900 lb thrust engine developed from that fitted in the American F-111. The F2 prototype flew on June 12, 1966, and on December 29, 1966, flew at over Mach 2. A further development is the F2A, which seems likely to enter production.

Experience with the Mirage F2 has been incorporated in the later F1, or 'Super Mirage F1', a scaled-down single-seater version of the F2 with geometrically similar wings, and intended ■ an interceptor/ground attack fighter. It represents another approach to the problems the Mirage 5 was planned to answer. A SNECMA Atar 9K with 12% extra thrust powers the machine, first flown at Melun on December 23, 1966. On its fourth flight on January 7, 1967, it exceeded Mach 2. 'Cyrano' tracking and fire control radar permits use of two electro-magnetic or infra-red MATRA 530 missiles. Sidewinders and 2 × 30 mm guns can be fitted, and there are six under-wing attachment points and another beneath the fuselage. These permit loads such as 14 bombs or 72 rockets, or 2 Nord AS 30s and various mixed loads. The Martel missile could also be carried. Already Dassault have planned simplified versions for visual attacks and more complex variants fitted with highly sophisticated systems.

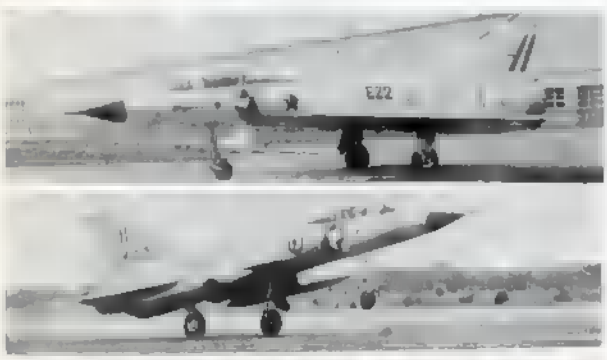


Top: *Mirage III-V, 02, with red and yellow cheat lines. Note the open 'doors' connected with the 'VTOL' engines.* **Above:** *Mirage III-E, No 497, with long-range tanks and extra nose radome. Note open vent appearing to remove part of roundel.*

The Mirage series has readily lent itself to adaptability for research purposes. The Mirage III-T was the world's first military aircraft to fly with a fan jet, the SNECMA TF-106 giving 19,840 lb thrust. The Mirage III-F test-bed was designed to take the TF-306, and two have been ordered for development of the armament system of the III-V.

A major development, the III-V was a short or VTOL strike-reconnaissance experimental fighter. Called Balzac, the first example ■ the Mirage III 01 prototype suitably modified. It had the original wing and retained some fuselage parts, but its Atar 101G.1 was replaced by a B-S Orpheus 3. Smaller intakes were fitted and eight Rolls-Royce RB 108 lift engines. Retractable intake grills were covered by fairing doors. On October 13, 1962, the machine made its first hovering flight and on March 18, 1963, its first transition. Late in 1963 45° jet deflectors were added. It crashed on landing on January 10, 1964.

Development of the Mirage III-V VTOL Mach 2 fighter-bomber followed. It was fitted with a SNECMA TF-306 fan jet and eight RB 162s. The principal idea behind this version is the development of ■ penetration fighter flying at around 500 feet, and fitted with terrain avoidance radar connected to the auto-pilot. The first III-V (TF-306/RB 162) made its initial horizontal flight and vertical landing at Istres on March 24, 1966, and the second of the two prototypes flew in June, 1966. Propulsion engine troubles caused initial tests with the aircraft to be made fitted with a Pratt & Whitney JTF-10 (first flown in the Mirage III-T on April 4, 1964). It was intended that the SNECMA TF-106 be



Top: *Mirage III-EZ of the South African Air Force, No 820, EZ2, in natural finish, red trim, and black lettering.* **Above:** *Mirage III-O of the RAAF.*

installed in 1965, but more trouble led to using the TF-30 (known as the TF-306 in France). Both prototypes are two-seaters. Any production aircraft will also have a crew of two.

Great interest now centres on the Mirage G, which has a variable geometry wing, and which was ordered by the French Government in prototype form in October, 1965. Since the Anglo-French VG project has now been cancelled the Mirage G may well prelude a catastrophic situation in the British aircraft industry, for the French may find themselves with a VG fighter-bomber, studies of which have already been undertaken for its operation from carriers. Whereas the Mirage G has a single TF-306 engine the AFVG would have had two, and be more costly. First flight of the G was planned for July of 1967. A turbo-fan coupled with the variable geometry wing makes long-range an obvious asset, allows supersonic speed at ground level and high speed flight at high attitudes. Doubtless the French are eager to develop the machine into an operational configuration.

Whereas the AFVG was merely paper and hot air the Mirage G exists: which is more than can be said for an intelligent British defence policy. Shorn of new carriers, the still unequalled TSR-2 smashed, our VTOL lead allowed to peter out, overseas bases gone, the excellent P.1154 a one-time amazing dream and no more, little wonder that anyone who cares for Britain and the Services cannot but view the ministerial direction with utter disgust . . . and the future with trepidation as unruly nations arm themselves to the teeth. Yet for Marcel Dassault the future may be bright, as the French industry supplants that of Britain which, so recently, led the world. **Michael J. F. Bowyer**

Below: *The handsome-looking Super Mirage F.1.* **Bottom:** *Mirage G with VG 'swing' wings at Melun Villaroche on May 27, 1967. Machine is in natural finish with the usual French roundels and narrow yellow outline which characterises the Mirages of the French Air Force.*

NEW BOOKS
REVIEWED FOR MODELLERS

Scottish route

THE CALLANDER & OBAN RAILWAY, *by John Thomas. Published by David & Charles (Publishers) Ltd, South Devon House, Railway Station, Newton Abbot, Devon. Distributed by Ward Lock & Co, Ltd. Price 35s.*

THE prospects of building a railway from Callander in Perthshire to Oban on the West Coast of Scotland across 71 miles of bleak mountain passes with nothing but a few sparse hamlets en route look uninviting enough. Not the least interesting part of this 200 page book are the chapters which describe how this came about and some of the methods that were used to enlist financial support. The absorbing story of construction, operation under Caledonian, LMS, and BR control, plans for expansion and subsequent decline is delightfully told and many anecdotes, the obvious result of much painstaking research, enliven the text. Most of the 42 photographs used for illustrations are drawn from the past and there is an excellent colour plate. Maps, diagrams, reproductions of timetables and posters, eight appendices, and an index, complete the book.

Vintage tramway

THE HAYTOR GRANITE TRAMWAY & STOVER CANAL, *by M. C. Ewans. Published by David & Charles (Publishers) Ltd, South Devon House, Railway Station, Newton Abbot, Devon. Distributed by Ward Lock & Co, Ltd. Price 17s 6d.*

THIS is a new fully bound edition of a paper back work which we reviewed in the February, 1965, issue of AIRFIX magazine. An increase in the number of pages from 63 to 72 reflect the newly added index and the addition at many points in the text of new information brought to light since the first edition. One of the delights of the book are the chapters on remains and the itineraries that can be followed in tracing them today. Parts of the tramway have been declared an Historic Monument. This could well serve as an introduction to the fascinating subject of industrial archaeology, and transport enthusiasts holidaying in Devon this summer are well advised to take a copy of the book with them.

More on tanks

STURMARTILLERIE, FROM ASSAULT GUNS TO HUNTING PANTHER, *by Walter J. Spielberger and Uwe Feist. Price 23s 6d, including postage. Published by Aero Publishers Inc, Fallbrook, Calif, USA.*

FIFTY FAMOUS TANKS, *by George Bradford and Len Morgan. Price 16s, including postage. Published by Arco Publishing Co Inc, New York, USA. Both available from the overseas agents, W. E. Hersant Ltd, 228 Archway Road, London N6.*

NEW books on armour seem to be coming thick and fast from publishers this year and the latest pair will both be very useful to modellers and military enthusiasts.

Sturmartillerie is the third in the Armor series and while following the format of previous issues is a very much more 'complete' book than its predecessors probably due to the fact that its principal author is a recognised authority on the subject.

Continued on next page

There is a particularly informative introduction giving a good outline of the development of the German assault gun and the remainder of the book deals with all variants of the StuG III, StuG IV, Jagpanzer IV, and Jagd Panther mark by mark, largely in pictorial form. There are brief specifications of all types so illustrated and the captions point out the various modifications which each vehicle underwent. Reproduction is excellent, there are many rare pictures, and the usual colour action paintings complete the book, which offers a great deal of useful information for the money.

Fifty Famous Tanks is an attempt to outline the history of tank development by selecting significant designs which have appeared since 1916 and presenting them chronologically with a commentary pointing out the main features and actions which distinguish each type. There are numerous pictures and, in some cases, supplementary drawings. In addition to the text and pictures—which range from Little Willie up to the Sheridan—there is a cut-away drawing of a Chieftain and a keyed table of data giving brief specifications of each type covered. This is an attractively produced book which will be of special appeal to the newcomer to the field of AFVs.

MILITARY VEHICLE PRINTS, SERIES 12. *Price 4s (post free UK, 1s 6d postage overseas). Published by Bellona Publications, Hawthorn Hill, Bracknell, Berks.*

USEFUL conversion references for the Airfix German armoured car are contained in the latest set of drawings from Bellona. This features the Sd Kfz 232 Funkwagen in five-view to 1:76 scale. Sufficient information is also given for the Sd Kfz 231 which was virtually the same but without radio equipment. Readers may recall that we dealt with conversion work for these variants in our January and February, 1965, issues. Other subjects covered in this issue are the M3 Stuart (Honey), the Australian Sentinal cruiser tank and, most usefully for those who want German soft-skinned transport, the main types produced on the standard Opel 3 ton chassis. These are the standard truck, the truck with the 'ersatz' cab, the truck with box-van body, and the Maultier half-track lorry. These drawings will be invaluable for scratch-builders wishing to equip their miniature German armies.

As usual with this series, the drawings come in booklet form with illustrations, historical notes, a colour cover, and binding holes for the Bellona binder.

Old lines

STONE BLOCKS AND IRON RAILS, *by Bertram Baxter. Published by David & Charles (Publishers) Ltd, South Devon House, Railway Station, Newton Abbot, Devon. Distributed by Ward Lock & Co, Ltd. Price 45s.*

THIS 272 page book, the latest in a series on the Industrial Archaeology of the British Isles from the publishers David & Charles, is concerned with the waggonways, horse railroads and tramroads of which something like 1,500 route miles existed at one time in Britain. Some are and were relatively well-known, such as the Surrey Iron Railway, but the vast majority were quite obscure. Their remains lie unsuspecting for most people but a surprising amount can still be found today as the 40 or so illustrations and the fascinating chapter on tracing old lines amply demonstrate. The first part of the book gives a history of their evolution and descriptions of the many forms in which they existed. The second part is a 94 page Gazetteer of Waggonways and Tramroads known to have been in existence at one time or another. The author modestly claims that he has only been able to deal with the subject in a general manner but the 19 page bibliographical list shows the extent to which he has applied his research. A most interesting and high quality book for which both publisher and author deserve high praise.

Exciting era

THE LONDON & NORTH EASTERN RAILWAY, *by Cecil J. Allen. Published by Ian Allan Ltd, Terminal House, Shepperton, Middx. Price 50s.*

FEW railway journalists are so well placed to write a book about the LNER as Cecil J. Allen since he was on the staff of this railway for all but the final year of its life. The company embraced many diverse fields of activity from the quiet fens of East Anglia to the industry and coalfields of Durham and Northumberland. Its locomotives and train services were equally varied. The situation applying at the grouping, the state of the constituent companies, and the economic events which subsequently effected the LNER's progress are neatly surveyed. Immediately pre-war it created for itself an enviable position amongst the world's railways with its chrome, silver, and blue high-speed streamlined trains, a world speed record and Gresley's phenomenal A4 Pacifics. Much of the excitement of this era is conveyed in the book but other, perhaps less glamorous, spheres of the company's activities are equally faithfully recorded.

A connoisseur's book

MILITARY DRAWINGS AND PAINTINGS IN THE ROYAL COLLECTION, *by A. E. Haswell Miller and N. P. Dawnay. Published by the Phaidon Press and available from Ken Trotman (Arms Books), 3 Ash Close, Naphill, High Wycombe, Bucks. Price 95s, plus 4s 6d postage and packing.*

ANYONE looking at the price of this book will guess that it is something special. In fact, it's one of those fascinating luxury publications which comes out from time to time, and is one of a series covering reproductions from the vast art collection of Her Majesty the Queen. Almost 500 big illustrations of military dress from the late seventeenth to the early twentieth centuries are packed into the top quality pages of this book and there are 28 full-colour reproductions which are hand-mounted. The book forms a catalogue of the Royal Collection in this sphere—similar volumes deal with other subjects—but this particular book is obviously of great interest to wargamers and model soldier enthusiasts who are looking for uniform and colour references. There is a scholarly introduction dealing with all the periods represented, which in itself gives a great deal of information on uniform and military matters. Among the gems we found in the illustrations were such items as Indian baggage elephants, many Crimean War scenes, famous generals, just about every British regiment for every period and many more.

Glider days

THE WOODEN SWORD, *by Lawrence Wright. Published by Elek Books. Price 42s.*

SEVERAL books have appeared about the wartime airborne forces and their operations. Each reveals tantalising tit-bits of the type enthusiasts enjoy and model makers need. This is very true of *The Wooden Sword*, written well

Continued on page 470

Two-seater Starfighter

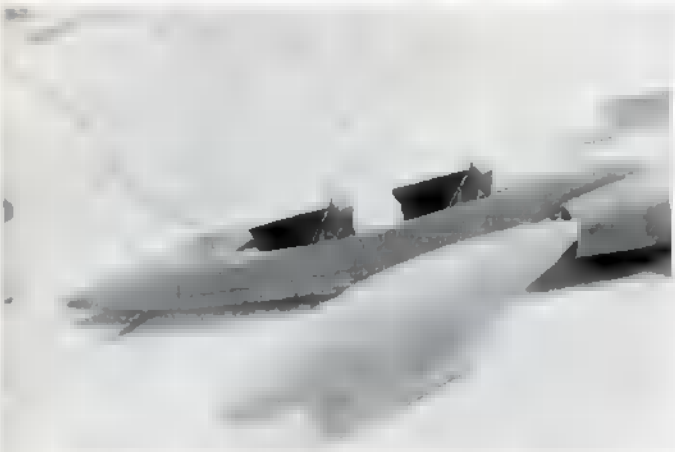
A TF-104G CONVERSION FROM THE AIRFIX KIT, BY ALAN W. HALL

THERE are several aircraft kits in the Airfix range that can be converted by the addition of an extra cockpit. Most present day fighters, due to the complexity of their operation need a dual control version. To produce a two-seat version of most of these is generally a job of major complexity, take for example the Hunter T7. The TF-104G on the other hand is remarkably easy when the kit is compared with the plans on these pages; all that is really needed is a new cockpit canopy.

There are several minor items that can be modified at the same time but apart from the possibility of being able to add a fully detailed cockpit interior there is very little else to do.

Add to this that every air force possessing F-104s also has the two seat version and you have a whole series of different markings that can be applied during the finishing stages. Excellent reference can be obtained for this from the Profile publication on the F-104. There are six photographs depicting five different schemes for the TF-104G ranging from the Danish Air Force to the German Navy.

As this is what might be termed ■ beginner's exercise I will amplify the detail in the construction notes ■ far ■ possible.



Main feature of this conversion is the addition of a second seat and cockpit, seen in this nose close-up. We get many requests from readers for canopy moulding details and this article covers the ground again. Balsa canopy mould is shown in foreground.

STAGE 1 Assemble the two forward fuselage halves, the nose cone and the cheek intakes. Add lead to the nose in the small compartment forward of the cockpit. A piece sufficient to fill this area will be quite sufficient to keep the model on its tricycle undercarriage on completion of the model. The two rear fuselage pieces can also be assembled and laid aside at this stage. Do not add the fin and rudder until later.

STAGE 2 After the fuselage joints have dried out fill the seams with body putty. The F-104 is rather difficult as far as fitting of parts is concerned and you will possibly find that unless you add a filler to the joints an ugly gap will result which cannot be disguised with painting. Body putty applied in these proportions needs at least 24 hours, if not longer, to dry out. Do not try to clean up before this time has elapsed.

STAGE ■ Having completely cleaned up the fuselage front and rear portions stick both pieces together ensuring that the location holes for the speed brakes line up. Additional work with the knife on this area will also be required and depending on whether you wish to have the brakes open or closed the amount of work will vary. Brakes and the rear underfuselage door can be glued in position now if required and the filling and sanding process repeated. For very fine gaps I have found that the addition of ■ little Plasticine will fill the seam quite well. It must be remembered however that this method can only be used after sandpapering. Trying to sandpaper after Plasticine has been added will only result in it being pulled out and a rather messy mixture of Plasticine and dust will be left!

Continued on next page

STAGE 4 Clamp the fuselage in the vice and with a fret saw cut at an angle from a line level with the join of the intakes and the rest of the fuselage to the existing cockpit. Beginners will do well to mark the line with a pencil before starting the cut. The line should be very slightly curved as can be seen from the plan and care will have to be taken to keep to it.

STAGE 5 From a piece of ¼ inch balsa, cut out the cockpit canopy mould. This is shaped by using a knife and sandpaper until the desired profile (as given in the drawing) is achieved. Smooth finish can be achieved by a thick coat of a talcum powder and clear dope mixture which, when set hard, will polish down to give a hard surface. Use only the finest sandpaper for the last polish and do not skimp this operation as on the finish achieved so will the finish on the canopy appear. With the mould completed, draw round the shape in plan on to a piece of very thin ply or obechi and then mount the completed male mould on to a handle of scrap balsa for easy operation during moulding. Cut out the interior of the female mould from the obechi sheet and clean up, ensuring that the fit of the two is sufficient to allow the thickness of the acetate sheet to be used for the canopy to pass through.

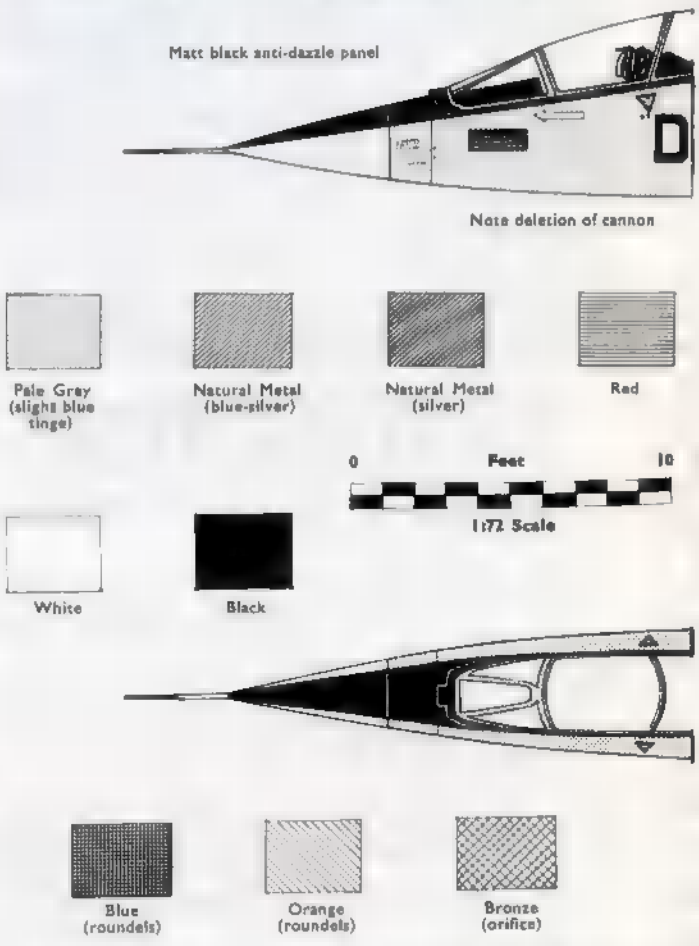
STAGE 6 Acetate sheet should be the thickest obtainable. Most model suppliers hold this material and it is relatively inexpensive. Cut a large piece and pin it to the female mould. I used eight drawing pins to do this as the size of the mould is above average. It is essential to make sure that the acetate is securely fastened otherwise it will curl up badly during the moulding process.

STAGE 7 The TF-104 canopy is a fairly large one and the beginner will probably have to have several attempts at getting a perfect canopy. I had to make four in order to get two. It is always advisable to make a spare when moulding as you can make mistakes in cutting out and the second attempt always takes longer and appears to be beset with more hazards than the first. To do the actual moulding hold the female mould under heat, I use the grill in an electric stove, until the acetate sheet curls at the edges. Too much heat will result in bubbles appearing; too little and you'll not get the canopy to mould at all. Once the necessary softness of the acetate is reached, quickly plunge the male mould through the female until the base of the mould sinks in up to the handle. The acetate will harden immediately and you can remove the pins within a few seconds.

STAGE 8 The canopy can be cut to shape either before or after adding the cockpit detail. This is done in the initial stages by cutting off the surplus with scissors and then shaping the remainder with a very sharp knife and gentle application of fine wet and dry paper. The cockpit interior can be as detailed as you like. Some model makers go to town on this and get down to painting the 'whites of the pilot's eyes'. Your own desire for detail will be sufficient guide. Personally I made up an additional ejector seat from plastic card, added the two cockpit dividers made from balsa and painted in the various dials and instruments on the panels. The only point worth mentioning is the fact that I found that the rear cockpit needed a false floor to raise the ejector seat up to the appropriate height.

STAGE 9 Having got the canopy out of the way, the cockpit interior painted and the canopy fixed in position the rest of the model can be completed. I added the tail unit next followed by the drop tanks, speed brakes, undercarriage and nose probe in that order. The latter was added last. As it comes from the kit it is too thick and heavy and will need a lot of rubbing down to get it to scale size. You will also find the need for a little scraping and finishing when it is adhered to the nose as the fit isn't too good.

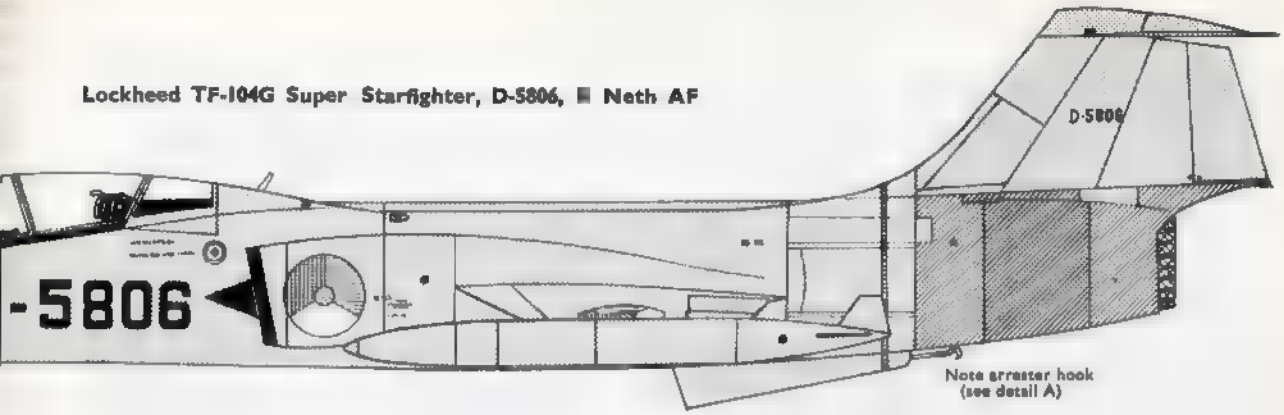
Above: *D-5806, subject of the scale drawing.*



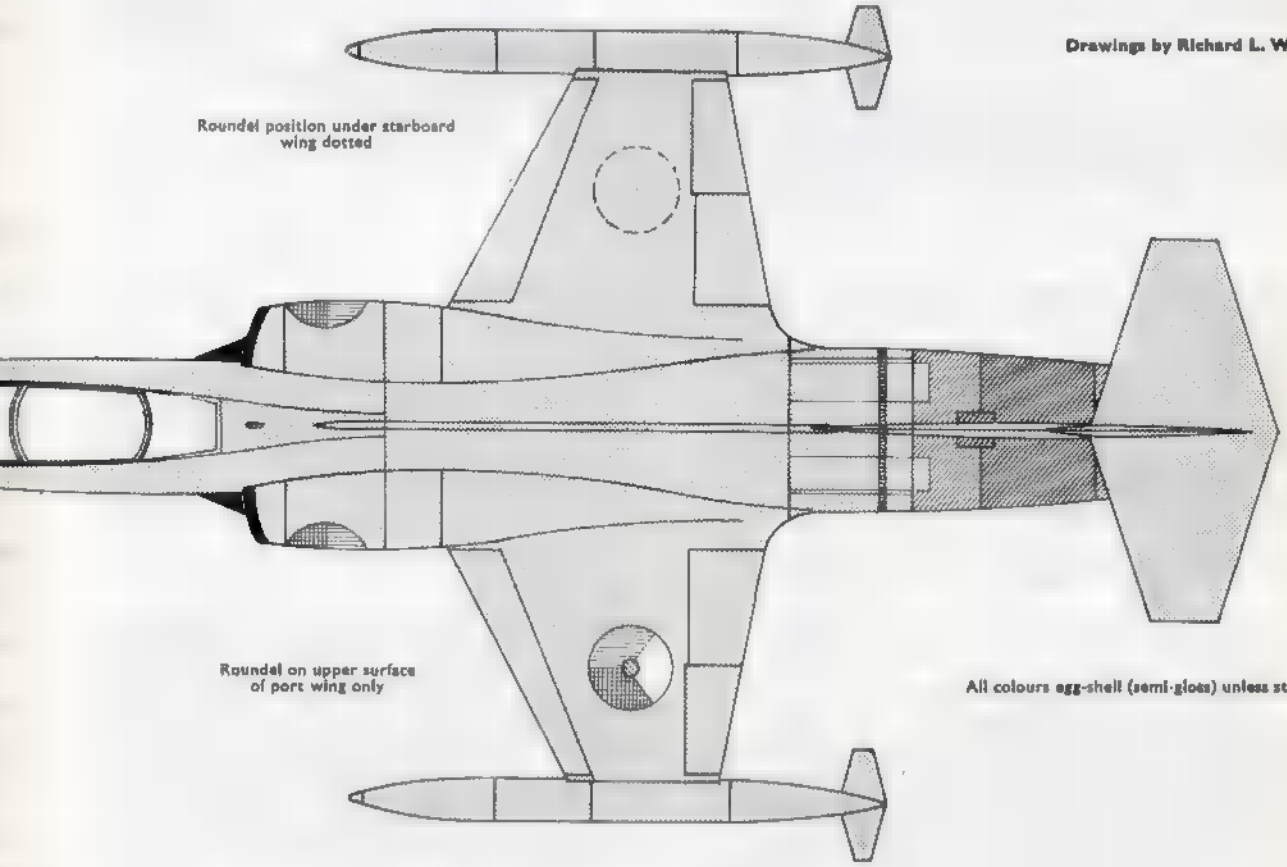
STAGE 10 Two additional items needed that are not in the kit are an arrester hook under the rear fuselage, which was made by stretching plastic stem under heat, and a UHF aerial on the rear of the canopy. For this I drilled a small hole in the canopy and made a peg on the aerial out of plastic card so that it had something to key into.

PAINTING For the Dutch Air Force TF-104G I used grey paint starting with Humbrol dark grey 27 and added matt white until the desired light grey tone was achieved. To this was added one part of matt blue 25 and the whole mixture had four parts of clear varnish added to give the semi-gloss finish of this type of aircraft. The two tones on the rear fuselage were made in a similar way. The blue-silver was made from black and silver mixed plus one part of matt blue. The black on the intakes and shock cones came from Humbrol railway black which is semi-matt anyway though the same result can be achieved by putting varnish in matt black. Markings were cut from standard Yeoman sheets and the tail serial number came from a Letraset sheet. Roundels were found in the spares box and were originally from a Fokker D.XXI kit, though you could paint them over RAF roundels of the correct diameter.

Lockheed TF-104G Super Starfighter, D-5806, ■ Neth AF

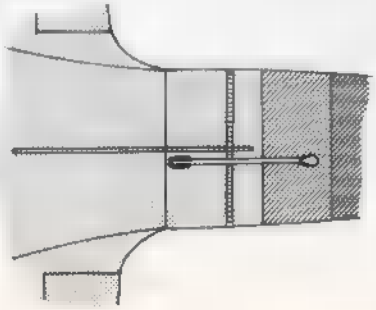


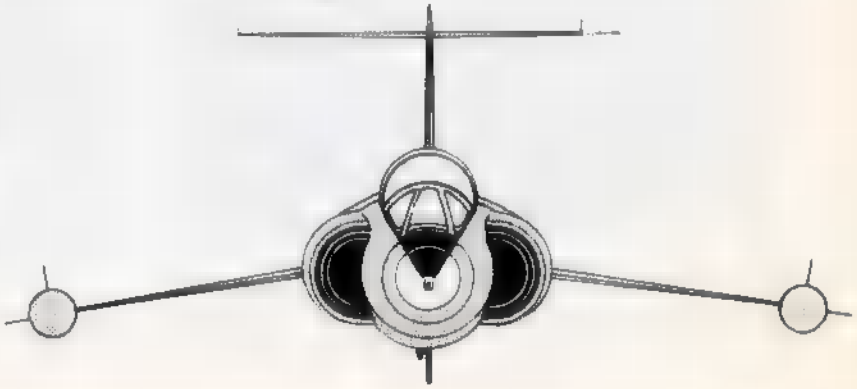
Drawings by Richard L. Ward



All colours egg-shell (semi-gloss) unless stated

Detail A: underside of fuselage showing arrester hook





photoPAGE

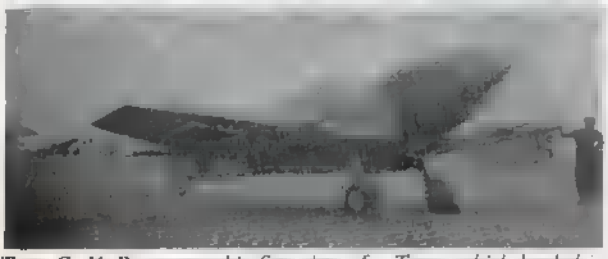
Pictures this month cover the wartime Middle East, Fleet Air Arm, and the SEAC theatre. Captions by **Michael J. F. Bowyer.**

'Photopage' is a regular Airfix magazine feature, and further pictures will be published as available. We would be pleased to consider any contributions from readers, particularly of squadron aircraft or interesting colour schemes, and a free Airfix kit will be awarded for each picture used. Would intending contributors please note, however, that photographs submitted should be private copyright.

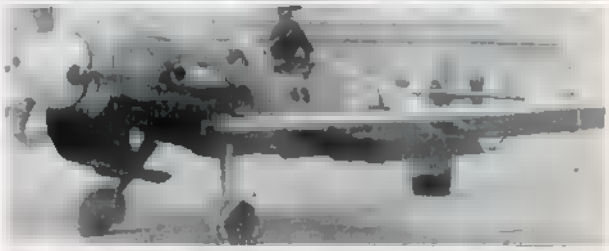
Owing to space limitations, it may be necessary to hold pictures for a few months before publication. To ensure safe return, please write your name and address on the back of each print. We cannot use press cuttings.

Above, left: *A Spitfire XIV of 28 Sqn at Bayas Repas airstrip, Penang, in 1946. Standard SEAC scheme and markings. Picture from Niel Taylor.* **Above, right:** *Veteran Gannet still flying is Mk 1, XA430, in blue-grey finish, photographed by Alan Hall at Lee-on-Solent as mentioned on page 439.*

Above, left: *A very rare shot from A. S. Mawman of a Spitfire PRXI, EN681, of 680 Sqn flying over Egypt. Finish is PR blue with black serials.* **Above, right:** *Avenger in SEAC roundels with white stripes, coded F on tail, and what appears to be 4F under tail, comes from J. S. Babham. Can anyone identify?*



Top: *G. V. Potts sent this fine view of a Topsy which landed in error on Labuan Island just before the end of hostilities in the Pacific. It carries the white cross applied to captured Japanese aircraft.* **Above:** *From B. Hatton comes this view of a Spitfire LFIX in Turkish Air Force markings and standard RAF camouflage.*



Top: *Yet another Wellington transport picture shows ?7723 of the Communications Flight, Khormaksor, 1947. It is silver doped with dark green engines. Picture from G. Hancock.* **Above:** *Bf 109G of I/JG27 captured in Libya. Photo by G. Douglas.*

NEW KITS AND MODELS

'PRINZ EUGEN' FROM REVELL

THE second kit in Revell's 720 series of warships is the German heavy cruiser *Prinz Eugen* whose seven-year career included the sinking of HMS *Hood* and the Channel Dash of 1942 in company with *Scharnhorst* and *Gneisnau*. Her luck changed after this and she was torpedoed by HMS *Trident* but survived the war to be surrendered at Copenhagen. This fine vessel was eventually sacrificed at the A-Bomb tests at Bikini Atoll in 1947.

The 1:720 scale kit contains 70 components moulded in grey plastic and individually numbered on the sprue. The detailing is up to Revell's usual high standard and the parts fit together well. The main armament is mounted in rotating turrets and other features include the distinctive cowled funnel, secondary armament and seaplane and catapult. The hull assembly is similar to the USS *Arizona* reviewed in June and can be made into a full hull or waterline model at will.

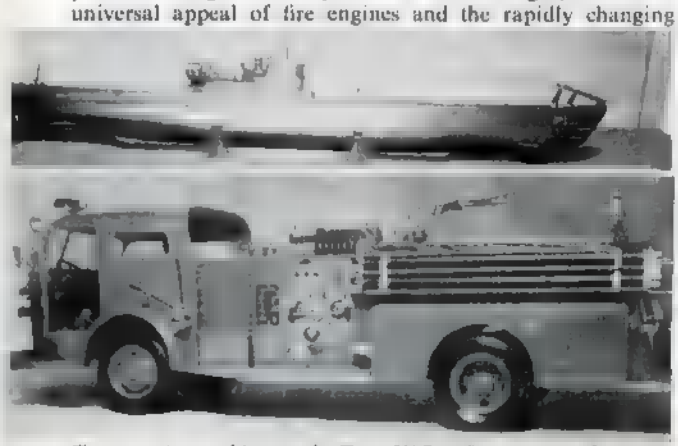
The instruction sheet is printed in English, with translations into French, German and a Scandinavian language, and is easy to follow with stage by stage drawings. Adequate painting instructions, together with the box top illustration, make the model easy to finish, and a sheet of gummed ensigns and code flags is also included.

There are also several conversion possibilities offered by this kit at the reasonable price of 8s 8d. *I.W.*

BIG FIRE ENGINE

THE prototype of this 1:25 scale kit by Aurora is the Metropolitan, a series 900 Class A Pumper built by the American La France fire engine company.

The model has an overall length of 9¼ inches. It is a delight to construct and very attractive to view on completion. Though obviously transatlantic in origin, the almost universal appeal of fire engines and the rapidly changing styles of appliances in our own country, is likely to ensure popularity of the model on both sides of the Atlantic.



Two new Aurora kits are the Type IXC U-Boat, reviewed on page 465, and the La France fire engine.

All parts are moulded ready coloured in red, grey, black, clear or 'chrome' plated plastic and the very minimum amount of painting is required. Construction is aided by the step by step illustrated instruction sheet and by the ease with which parts can be positively identified. All parts are numbered and the number includes a code letter to indicate in which colour plastic it is moulded. All the parts are strongly made and fit together very well. The opening cab doors are particularly commendable. We were, however, none too happy with the wheel fixing. The heavy rubber tyred wheels are held on by a small chrome plated hub cap cemented to the end of the axle. In the case of the twin rear wheels, only the inner wheel is mounted on the axle, the outer wheel is simply cemented to it and the combined weight is really too much for the tiny hub cap to withstand. If it later comes adrift as ours did there is no way of refixing it short of cementing the wheels on solid. This is but one criticism and apart from this the kit is excellent.

The price is 32s 6d and should you find difficulty in obtaining it from your local hobby stockist you can get it direct from the importers, Model Hobby Products, Mebro Works, Cuckoo Hall Lane, London N9, postage extra. *N.S.*

NEW FROM BELLONA

LATEST addition to the Bellona Battlefield series is a set of two structures suitable for use with German World War 2 soldiers. Both come in vacuum-formed plastic on a common base ready for cutting out with scissors or a craft knife. Largest of the two is a German concrete pill-box of the type used in the Seigfreid Line and other defence systems. It has an entrance in one face and embrasures in the three other faces. A special feature is the separate slip-on roof which is cut from the base by the purchaser and can then be placed in position on the lower half of the pill-box. This allows figures to be placed inside without disturbing the base. Also the roof can be removed or dislodged to simulate destruction. Second item in the set is a concealed machine gun position, an earth structure with wickerwork revetting. It also has a removable—or optional—roof. It accommodates either a machine gun, a mortar (with roof omitted), or a light PAK gun such as the 2.8 cm weapon in the Airfix German infantry set. Both models are made from official German plans and scaled for OO/HO figures. The colour of the plastic is earth brown, and the price is 3s 3d.

Also released by Bellona is a new scenic feature for model railways which consists of a canal wharf set with a nicely detailed jetty which is specially dimensioned to take a narrow gauge railway track. Model boats or barges can be placed in suitable positions on the 'water' base for loading operations. This unit includes the canal banks and would lend itself, by suitable cutting, to a variety of arrangements. It fits in dimensionally with existing Bellona canal sections

Continued on page 465

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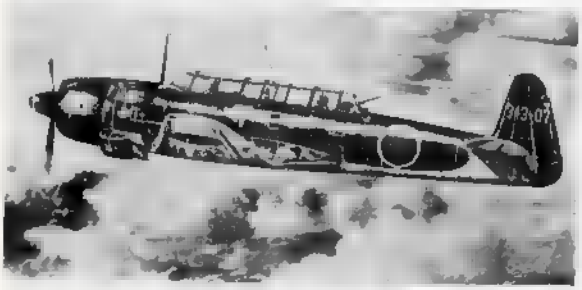

ABT DECALS 3/6
1/72

37 for Feisler Storch German and French

29 ■ Anti-glare panels in three colours

26 for Stukas

27 for Me. BF106G, Italian, Hungarian, Crotia, German, and Hungarian Fiat CR42

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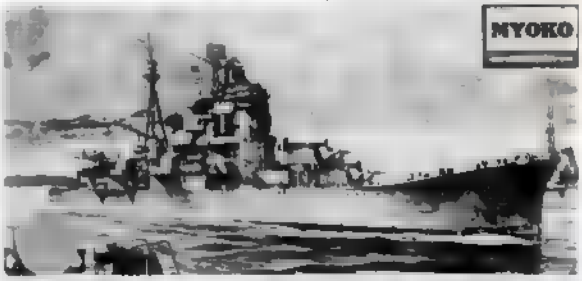
RL 34 Shoki KI-44 9/11

HISAI[illegible] news. June/July 1967 with free Thailand Decal. Price 4/4



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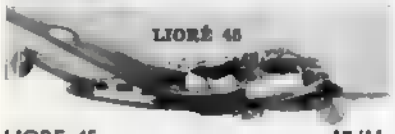

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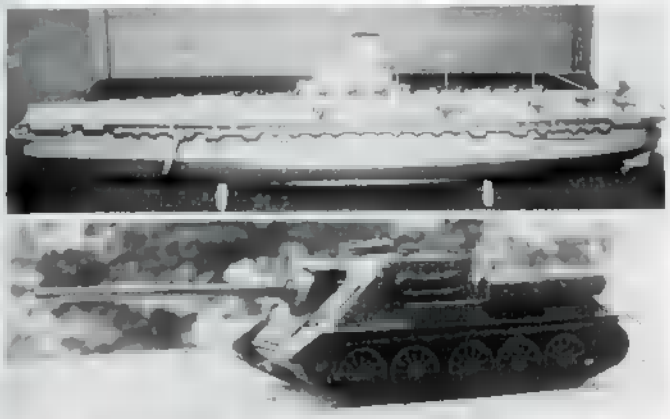
and should have wide appeal. The jetty is not really wide enough for 'standard' gauge railway tracks, but we found it perfect for TT track and, obviously, it would make a large and imposing jetty for N gauge layouts. Two lengths of canal section are supplied as separate units with this set, and a fourth item is a 16 x 10 inch sheet of plastic rock face complete with moulded 'strata' for use in model cuttings, quarries and cliffs. This is most realistic when painted. Price of the complete outfit is 19s 6d, postage 1s 4d.

Finally Bellona have produced a new illustrated catalogue which shows and lists the whole range of Bellona items and plastic sheet. This is available for 6d and a SAE, from Merberlen Ltd, Hawthorn Hill, Bracknell, Berks. *C.O.E.*



Top: *Hasegawa's big* Shinano *kit (Green Label).* **Above:** *Tamiya's SU-100 (Blue Label). Both from BMW Models.*

SUPER CARRIER 'SHINANO'

HASEGAWA'S *Shinano* kit was sent to us for review by BMW Models of Wimbledon (see last month), from whom it can be obtained for 59s 11d. For this sum, any warship modeller will get many evenings of pleasure building this 340 part kit into a 1:450 scale replica of the ill-fated Japanese super carrier.

The grey hull moulding is one-piece and ready painted below the water line, although most modellers will repaint this as red oxide colour is not strictly accurate. Into the hull is assembled the 3 volt electric motor, batteries, gear trains, propellers and shafts which motorise the model. Some ballasting is also required to ensure the model floats upright. The flight deck, which is nearly two feet long, is moulded in brown plastic, but again repainting is recommended. The upper surface has the deck marking moulded in the plastic, which makes for easy lining out. All other detail is moulded in grey plastic and includes 108 20 mm AA guns in triple mounts, 16 6 inch guns in twin turrets, the distinctive island with its funnel leaning outboard, wireless antennae which fold outboard during 'flying' operations and radar antennae. A complement of eighteen aircraft come with the kit—six Zeros and a dozen Jills, half of the latter with wings folded. The aircraft are in green plastic, but again required repainting—in fact, this took up the whole of one evening!

The end result is a superb working model of the 68,000 ton giant, which will be the centrepiece of nearly any collection. The instruction sheet is printed in Japanese, and in places was difficult to follow, but each sprue comes in its own sealed plastic bag and is indexed in the instructions, which helps considerably. We would have thought it possible to provide a translation with the kit for the British and American markets. However, this kit is one of which Hasegawa are justly proud and we unhesitatingly recommend it. *I.W.*

MORE FROM TAMIYA

TAMIYA has just released two more commendable kits in its expanding range of tank models and these are available in the Blue Label series from BMW Models of Wimbledon who supplied our review samples.

In the popular 1:35 scale, the newcomer is a finely detailed replica of the Soviet SU-100 tank destroyer which leaves nothing to be desired in terms of accuracy—we couldn't fault it—and has the virtue of being extremely easy to assemble. We made it in about two hours. Like the other 1:35 scale models it has the usual electric motor, ready-assembled transmission unit, flexible rubber tracks and revolving road wheels. The motor is controlled by a simple forward/stop/reverse switch and the performance is excellent from two standard U11 batteries, not supplied in the kit. Release of this kit means that Tamiya now offer the whole range of main Soviet types, the T-34, T-10 and T-54 being already available. Price of the kit is 19s 11d.

The other kit is another breath-taker in the 'giant' category. It's a 1:25 scale Panther, a model A to be precise. We could not find any fault in the detailing, and the workmanship and presentation is astonishing. Worthy of comment is the track and suspension which features individual track shoes—which the builder has to clip together himself—and metal torsion bar axles which are actually sprung with wire clips. There are two motors, each one driving a track independently and a remote control box holding four U2 batteries — not supplied — enabling the model to be 'driven' with the same sort of characteristics as a real tank. Tamiya have given a realistically textured 'armour plate' finish to the parts, a pleasing innovation. Needless to say, this is quite a complex model to build and not a beginners' subject. But if you've some experience of these big 'uns you'll like this kit. The price is £4 19s 11d, reflecting the truly 'de luxe' nature of the kit. Instructions are in English. The scale is at variance with Tamiya's previous 1:21 scale efforts but in this big size it hardly notices. *C.O.E.*

ATLANTIC VETERANS

THE two latest Aurora warship kits to reach us are a U-Boat and the pocket battleship *Admiral Graf Spee*, both World War 2 ships of the Kriegsmarine.

The U-Boat, described on the box as a 'Wolf-Pack Leader', is an ocean-going submarine of type IXC. This particular boat, U-505, was captured by a US Task Force NW of Dakar in June, 1944, and served in the US Navy as USS *Nemo* before being paid off and placed in a Chicago museum.

The kit, which scales at approximately 1:210, contains 40 parts moulded in black plastic and needs very little painting. The finish and detailing of the parts are first class, particularly on the deck mouldings, and the parts fit together well to make a fine model. The instruction sheet follows the usual Aurora style, being printed in both English and

Continued on page 467

French, and is easy to follow. The four-piece decal provided in our review kit was unfortunately not up to standard, the outlines of the characters being blurred, and the conning tower emblems illustrated on the box top were not included.

The *Graf Spee* kit scaled out at 1:600, and is an ideal subject for a Battle of the River Plate display in conjunction with the Airfix *Ajax* kit and *Achilles* conversion. The 99 grey components make a highly detailed model of this famous commerce raider, including rotating and elevating 11 inch guns, full secondary and AA armament, and the Arado Ar 196 seaplane, crane and catapult.

The painting details are included in the bi-lingual instruction sheet, together with the ship's history. Naval modellers will want to include this fine model of a famous ship in their collection, and many will have noted its potentialities for conversion to represent the *Admiral Scheer* or the *Lutzow*.

Each kit costs 12s 6d, and can be obtained from the importers, Model Hobby Products, Mebro Works, Cuckoo Hall Lane, London N9 (postage extra) if not available locally. *I.W.*

NEW CAR MODELS

CORGI have produced some splendid models in recent months for die-cast car collectors and the 'winner' in every sense is a magnificent 1:43 scale replica of the 3 litre Cooper-Maserati Formula 1 car which will certainly please racing car fans. This model is difficult to fault, considering that it is a mass-produced toy, and we were delighted to see the correct profile racing tyres, scale wheel hubs, and finely detailed suspension. It costs 5s 9d and is worth every penny. An equally fine model is the new Corgi Porsche Carrera 6 which also has scale tyres and hubs, a fully detailed interior, a lifting rear engine cover, and a detailed dummy engine. Other detailing on this model is equally noteworthy and it is a collectors' piece at 7s 9d. A third model to this standard is the Corgi MGB 'GT' complete with wire-spoke wheels, an opening tailgate, fully detailed interior, tipping seats, opening doors and plated trim. The price is 6s 9d.

Two commercials just introduced are a Kew-Dodge livestock carrier—in other words a 'stake' truck—with an opening tailgate and a load of pigs, nicely detailed and with an opening bonnet for 9s 6d, and an excellent model of a Holmes Wrecker Truck on a Ford tilt-cab chassis which costs 25s but is a most elaborate vehicle with two independently slewing jibs, each with its own working winch and a host of other super detail features.

Latest from Lesney is a Fordson tractor with a matching farm trailer complete with detachable raves. These cost 2s each and would be suitable for OO gauge railway scenes, though strictly speaking they are a little overscale for the purpose. *C.O.E.*

FOR THE WORKSHOP

WHILE a small vice counts as a luxury for the average plastic modeller, it is undeniably useful for anyone carrying out a lot of conversion work, building railway layouts, or working generally about the home. We've just been testing a very versatile type of vice called the Multi-Mini which differs from most tools of this kind in its ability to be set at an infinite number of angles for any specific task. It consists of a vice on a screw adjusted arm which is in turn pivoted on a heavy mounting base. The latter has screw holes for securing to a work bench if desired. The tool can be used in the normal way for holding a component while you work on it, or it can double as a clamp, acting as everything from a camera mount to a drill holder. The jaws have a maximum capacity of 11/16 inch and a separate set of rubber jaw liners is supplied to protect delicate items like plastic components.

The Multi-Mini has several other interesting features including ratchet-mounting for the jaws to allow rapid re-setting. It's well worth looking out for in your local tool or hardware shop, but the manufacturers, The Coventry Movement Co Ltd, Burnsall Road, Canley, Coventry, can supply further details if required. The price is reasonable at 67s 6d complete.

If you are looking for a strong but compact work bench, you may be interested in the Portabench which is being made by Metal Ventures Ltd, Southern Road, Aylesbury, Bucks. This is a tubular metal structure, two feet high and two feet by one foot in area on the working surface, which is of ¾ inch ply. It weighs only 11 lb and the legs have plastic non-scratch 'feet'. A novel feature of the design is a small three-rung plank trestle, supplied with the outfit, which fits on to the bench top to convert it into a stand for painting or maintenance purposes around the house. Finally, you can turn the Portabench upside down to form a trestle for sawing logs or planks. The price is £5 7s 6d plus 12s 6d carriage. Further details can be had from the makers. *C.O.E.*

MINITANKS LATEST

FOUR newcomers to the Minitanks range have come to hand from Model Hobby Products who import these 1:86 scale models to Britain. Two are British, the Chieftain and the Conqueror, and two American, the M109 and M107. These are all very accurate, the British pair being particularly attractive. The US models are self-propelled weapons on the standard 25 ton chassis. The M107 is a SP 175 mm gun and is of special interest, as this weapon has now been adopted by the British army. We think that Minitanks have wrongly designated the other model as a M109. It should be a T245 and is similar to the M107 except for a 155 mm gun in place of the 175 mm weapon. Both these models have traversing guns and working recoil spades. The M107 and Conqueror are 3s each and the other two models are 2s 6d each. Model Hobby Products can supply these if they cannot be obtained locally. *C.O.E.*

GWR 'KING'

MODEL on show for the first time at the MRC Railway Exhibition was the new 4 mm 'King' Class locomotive kit from Robert Wills in his Finecast range of cast metal kits. As is to be expected, it makes a superb model. All the main GWR express passenger locomotives are now available commercially in 4 mm scale—Wills' 'Star' and 'Hall' and Wrenn's 'Castle'—and the King is bound to be a popular addition to stock.

As a detail point the cross head and slide bars look particularly good in this model and so does the characteristic King bogie and front frame detail. The larger and subtler aspect, the look of a King, has also been captured.

The body kit costs £5 18s 7d including purchase tax. A chassis kit is also available to take a Tri-ang motor. *N.S.*

Letters to the Editor

Letters to the Editor can only be answered in the magazine. Readers whose letters are published each receive a free Airfix plastic construction kit of their choice. We are always pleased to receive your comments and pictures, which will be considered for publication. Submitted material and pictures can only be returned if accompanied by a stamped addressed envelope, and the Editor cannot accept responsibility for safe keeping of any such contributions, neither does he necessarily agree with comments expressed by correspondents in the letters columns.

Vintage models

I WAS surprised and quite shocked to read the Editor's footnote to Mr Pittam's letter in the May issue of the magazine. In it he states: 'Toys and models of the inter-war period, however, don't seem to be represented in museums yet'.

Obviously he doesn't know of the Museum of Childhood in Edinburgh. In it is represented almost every toy of historical interest which has ever been made. The museum is on three floors and covers such wide ranges as the foreign mechanical toys imported in the 1870s, Britain's earliest toy soldiers and artillery, and a huge dolls' house packed with miniature furniture and other items.

On the subject of preserving vintage models, I have sent an early Meccano (metal) aeroplane construction set to this museum as I know it will be taken good care of, be appreciated, and I hope, be of some interest to other modellers. Therefore, I would suggest that anyone with any models he considers worth preserving should send them to this museum where they would be most welcomed, I am sure. The address is: The Museum of Childhood, South Grays Close, High Street, Royal Mile, Edinburgh.

Anyone coming to the Edinburgh Festival this year should spare time to visit the museum. But be warned, you won't be able to drag yourself away for hours!

Pepe J. Whibley, Elie, Fife.

Must admit I'd never heard of the Museum of Childhood. In London most preserved toys—such as those at the London and Bethnal Green Museums—are mainly of Victorian origin with only a small representation of anything later than this. Elsewhere there are other museums with isolated examples of inter-war toys and models. For example, the few Skybirds in the Imperial War Museum, model soldiers at Woburn Abbey, and the Tiatsa Model Car Museum at Stratford. The museum at Edinburgh must be the only one with a representative collection under one roof in Britain. Or does anyone know of somewhere else?—EDITOR.

Roman Legions

HAVING read the letters concerning Airfix Romans (July issue), I would like to clear up a few points. Firstly, the standard in the set is a cohort standard (the cohort was the main tactical unit of the Roman Army and contained about 480 men—six centuries). Your correspondent who says that the legionary (this is the word normally used to denote a Roman infantryman) held his shield (scutum) in front of him is correct; in addition, a piece of leg armour, a greave, would be strapped to the lower right leg, which was not protected by the shield. The chariot in the set is wrong, but it is not really possible to use it as a British one, since those used by the Britons were drawn by ponies, not horses (the reason why the Britons didn't use cavalry was that they could only breed good ponies, the horses being unsatisfactory). The Airfix Roman helmet is correct, but, just before a battle, the legionary would affix to it a crest, as worn by the Airfix chariot officer. Finally, while auxiliary troops ('auxilia') were, in Caesar's day, second-class soldiers, in later times the difference between the auxiliary and the legionary gradually became less defined; indeed, during the empire period, the emperor's bodyguard was a picked battalion of Batavian auxiliaries.

J. R. Cudle, Enfield, Middx.

THE Roman Legion of Republican days was formed of maniples or groups of 120 men arranged in 12 ranks. The first two lines were in chess board formation, so if the first line retreated it could form a solid line. There were 20 of these maniples. Then come the last line with 10 maniples of light foot and ten half-maniples which acted as a reserve. A small force of cavalry on both wings acted as a mobile reserve. Thus a legion had 4,200 infantry and 300 horses.

As the Barbarian invasions came, the amount of cavalry, artillery and hand artillery went up till a legion had 6,000 infantry, and 6,000 cavalry and light infantry (archers) as well as ten catapults and 60 ballistae.

As Mr Barton says, the archers were always mercenary; the point about the shields is that one cannot run with a shield in front. I believe the chariot from the set was used but not at this time. The standard is a Republican one, the eagle being the sign of Imperial Rome. So the set portrays a very good set of Republican Romans.

Charles Vasey, Guisborough, Yorks.

SEAC Swordfish

I WAS most interested to see in the Photopage section of AIRFIX magazine for June, 1967, the photograph from Mr Alan A. Percival of the Swordfish LS348:KL carrying SEAC style national insignia.

The aircraft was from 834 Squadron FAA and the use of a two-digit code suggests a carrier borne rather than shore-based aircraft (possibly from HMS *Battler*). It would be interesting to hear from anyone with any further photographs or details of naval aircraft of the Fleet Air Arm serving with the British Pacific Fleet or from shore bases in that area.

For modellers interested in making an Airfix Swordfish in the marking illustrated, the camouflage scheme was Slate Grey and Extra Dark Sea Grey (Humbrol 31 and 27) with Sky Type 'S' undersides. Some sources quote the codes as being white, but I would suggest that these were actually Sky Type 'S' matching the undersurface finish. The exhaust collector ring was grey, while the spinner was in Sky Type 'S'. Interior of the cockpit was pale green.

Robert C. Jones, Editor, IPMS Magazine.

Rocket Shermans

IN Peter Chamberlain's article on the Sherman, he has a paragraph on Sherman rocket projectors, used by the Guards Armoured Division. This device was not at all official as it was not fitted on very many tanks.

The story of them was given me by my father who was one of the officers most involved. He gave me the following account:

'During a pause in battle in Holland in March, 1945, just before we crossed the Rhine, a brother officer, the late Captain Musker and myself in 1st Armoured Coldstream Guards, first fitted these rockets to our tanks. Being impressed by the effect of the rocket attacks made by the Typhoon close support aircraft, we decided to experiment with them by fitting one to the turret of one of our Shermans. A visit to the nearby landing strip found the RAF very co-operative and resulted in a Jeep load of Typhoon rockets each armed with 60 lb warheads. An aircraft rail was quickly welded on by the tank squadron's fitters and the first trial rocket was fired on the edge of a destroyed German village near Reichwald Forest. I fired it by touching wires to a battery some 30 yards away from the crewless tank. The effect and the noise was terrific—the target, half a house, disintegrated.

'A week's feverish activity followed, demonstrations were given to top brass and the whole squadron of tanks was fitted with launching rails for double rockets on each side of the tanks.

'Double rockets were used because, due to the lack of initial speed, the trajectory of a single one sagged too much immediately after leaving the rail. Because of the shape they were given the code name "Tulips". Aim, of course, was crude and

safety precautions rather elaborate, but as a short range weapon in that close built-up country their surprise effect in a sudden encounter could be stunning.'

My father saw a German 88 mm gun disintegrate from one of his salvos. The most notable success they obtained in the advance into Germany was probably during the crossing of the River Ems at Lingen where the terrifying fire of these tank rockets killed or stunned the 88 mm battery crews defending the bridge. The attack went like clockwork and the infantry, led by Captain Ian Lidell, who was awarded the VC for his part in this action, captured the vital bridge intact.

From that day until I drew his attention to this in AIRFIX magazine, he had never seen these rockets mentioned.

Hugh Boscawen, London SW3.

Display cases

AS a harassed 'mum' I would like to suggest that Airfix produce a range of clear plastic domes which could be used to cover completed models. I realise it would be too expensive to include these in the boxed models, but how about a separate range which could be purchased individually?

I am sure many mothers would be happy to buy them to eliminate accusations of rough treatment to models when dusting.

(Mrs) K. Szarty, London SE12.

We find that orchid boxes, available in various sizes from some florists, make admirable display cases for smaller models like tanks, cars, soldiers, and warships. At 3s 6d or thereabouts they are expensive but an even cheaper 'showcase' can be made from a clear plastic sandwich box such as is available from chain stores.—EDITOR.

Painting wheels

SEEMS as though some readers still have trouble painting wheels. Here is my method: after cleaning up the moulding, sharpen a matchstick or use a cocktail stick and poke it through the hole. Paint one side of the wheel centre, turn the wheel with the finger tips and paint the other side. Put the stick into a blob of Plasticine until the wheel centre is dry. Then paint the tyre, doing the inside edge first round the wheel centre by rotating the stick in your fingers and holding the brush steady. Put the stick back in the Plasticine until the first side is dry, turn the wheel over, and then do the other side. Finish off by painting round the tread. By using several sticks you can do a batch of wheels together.

M. C. Plane, Kihikihi, New Zealand.

Guard's uniform

I MUST congratulate J. S. R. Mead on his article 'Changing of the Guard'. However, there is an omission in the detailing of the uniform of the 1900 Life Guards trooper. On his short blue cuff there should be a gold chevron-like ornament with a button at the centre of the 'V'. This is still worn today, though, of course, it is not seen under the large white gauntlets.

T. G. Winter, Newcastle, Staffs.

Rhine Army

WITH reference to M. D. Sutor's letter (December, 1966) I also paid a visit to Rhine Army and can add to his description of the markings. Armoured vehicles of tank regiments carry a black board on the left rear of the turret. Each tank has a white serial number painted on it, consisting of two numbers and one letter, eg, 21C. This indicates the second squadron, first troop, tank 'C'. The troop leader's tank has no letter. Thus the numbers of the tanks in the first troop of the second squadron are 21, 21A, 21B and 21C. M. D. Sutor was not sure if his explanation of the codes carried on each tank was correct or not, but as far as I know he is right. I found that some of the troops did not know what they indicated!

M3 half-tracks are still in use with Rhine Army in the LAD (Light Aid Detachment) role. Not only do they carry sheerlegs as mentioned in Mr Wright's letter (May), but the backs are built up and permanently covered, while the front bumper is used as a workbench with fitted vice.

Charles E. Hall, Carlisle, Cumberland.

Figurehead

IN your February, 1967, issue G. C. Bartle is wondering whether 'the good ship *Revenge*' had a figurehead and, if she had, was it a griffon or something else?

The lamentable fact is, that nobody knows. We do not know even how this ship really looked. So far as I know there doesn't exist any contemporary pictures of this particular ship—still less any scale models. The best we can come to is to try to get some kind of mental picture, based on the astonishingly meagre verbal information of ships in general of this era. Considering the details we are more or less in the blue. The only thing we can be fairly sure is, that the ships were brightly painted—there were not really glossy paints that time—and that the sawtooth pattern was very much in fashion. There were, also, some carvings, but these became common a little later, during the Stuart period.

So, Mr Bartle can put a figurehead in his model or leave it off. Both guesses are equally good. Nobody can come and point out an error in this detail.

Antero Lepisto, Helsinki, Finland.

Canopies

A METHOD I used for years to make transparent cockpit canopies was to shape the particular mould required—for example, a Malcolm hood for a Mustang—from soft yellow pine and sand to shape slightly less than scale size. Coat this finished mould with a fine layer of soap and paint over it with several coats of clear nail varnish, allowing each coat to dry thoroughly before applying the next. After the final coat is dry, gently prise off the completed transparency with a razor blade or tweezers and trim the edges. I have also made gun turrets and radomes in this manner. Balsa, incidentally, should not be used as it dents too easily.

H. Whalley, Stockport, Cheshire.

Finnish Fiats

TAKING a second glance through the June issue of AIRFIX magazine, I noticed that you had drawn a Fiat G.50 bis in the Finnish scheme on page 384. In fact, the Finnish Air Force was supplied with late model G.50s as opposed to the G.50 bis which the Airfix model depicts. The Finnish G.50 would therefore need a modified vertical tail unit as in the sketch. I hope you'll print this correction as soon as possible before too many incorrect Fiat G.50s get built!

Robert C. Gibson, Newton, Notts.

Quite right, as the accompanying picture showed. Our apologies, and we hope Mr Gibson's sketches reproduced here will enable anyone who has already made the model to modify the tail accordingly. Thanks, also, to other readers who have pointed this out.—EDITOR.

Preserved Tiger Moth

WITH reference to Tiger Moth NL985, the photograph of which appeared in your January issue, this aircraft was presented to the Museum at RAF Colerne in August, 1965, by 212 (Risca) Squadron, Air Training Corps.

As far as I can remember, the recent history of this aircraft is, that for a couple of years NL985 was in a cellar of the old headquarters of 212 Squadron at Cwmfelinfach, in Monmouthshire. After a very happy annual camp, it was decided to present the Tiger Moth to RAF Colerne, as we were moving further down the valley to Risca and did not have room for it.

With the help of a driver and two airmen from RAF St Athan, the four of us moved the old and battered Tiger Moth. It was lifted, pushed and heaved out of the cellar, then on flat tyres, we trundled her down a narrow, stoney, rutted lane for about 25 yards, then heaved her by brute strength up the hill and on to the Queen Mary transporter.

From there it was taken to RAF Colerne. I might say that she looks a lot different from the last time I saw Tiger Moth NL985.

Flt-Lieut John A. Ashwell, 212 (Risca) Squadron, Newport, Mon.

Privateer points

AFTER reading D. L. Whiting's conversion of the Privateer in the July issue of the magazine, I would like to point out two errors. First, the rearmost of the upper turrets should be about 5 mm further forward than is shown on the drawing. Secondly, the BuNo of E56 should be 59682 and the type number PB4Y-2 should be on a line level with this. On the line above was the word NAVY. The number 56 was repeated in white (5-6 mm high on the model) on the outside of each of the outer engine nacelles.

P. Harrison, Dover, Kent.

by someone who was 'in at the beginning'.

Lawrence Wright has presented a fascinating story, laced with delightful humour of the type that always makes you think 'How ever did we win?' For the first time a first class account of the birth of the Central Landing Establishment is recounted, and there is plenty to read about the early days of the Hotspur and glider training at Haddenham. There is a collector's shot of a Hector towing off a Hotspur 1, and exciting views of Kirby Kites and rather sick BA Swallows. But the picture that we turned to most shows four Tiger Moths each towing a Kirby Kite somewhere near Duxford, one of whose Hurricanes is amongst them on a trial interception.

The first major airborne assault, on Sicily, is well documented making a sad story laced with friction amongst the 'Allies'. The expansion of 38 Wing into a Group is well covered, and there are items about various types of aircraft used and tried out—and why. The major assaults of later years are recounted, and a good index rounds off the book. It is one that many of our readers will, we think, enjoy. And for once the non-enthusiast will take it up and read quite happily—which is more than can often be said for the books enthusiasts fall for.

New Profiles

AIRCRAFT PROFILES 163-168; CAR PROFILES 73-78. *Price 2s. each. Aircraft Profiles 133-168 (Bound Edition). Price 84s. Published by Profile Publications Ltd, PO Box 26, 1a North Street, Leatherhead, Surrey.*

THE Bell Airacobra, Spitfire V, Hunter twin-seaters, Avro York, Do 17, and Roland CII are the subjects of the latest batch of Aircraft Profiles. Containing much useful information in the way of colour schemes and detail views, virtually all are of interest to Airfix modellers as they are all either kit subjects or conversion possibilities. The Roland will be of particular value, as little in the way of alternative colour schemes for this aircraft has previously been published. The P-39, Spitfire, and Hunter Profiles are good, also, for the variety of colour schemes illustrated.

The Car Profiles this month feature the beautiful Isotta Fraschini Tipo 8, the 1912-19 Peugeot racers, the Jensens of 1935-49, the very pretty Riley 9, John Bolster's famous 'Bloody Mary', and the 250F Maserati. Anyone with the Airfix slot-racing model of the latter will find the 250F Profile a 'must' for detail views and alternative colour schemes. In fact, the Profile gives enough detail information for the basic Airfix model to be turned into a scale showpiece. The 'Bloody Mary' Profile should give plenty of ideas to scratch-builders as this successful racer and hill-climber was a full-size 'scratch-built' job making no concession to beauty.

Following their now customary practice, Profile Publications have just issued the last 36 Aircraft Profiles in 'de luxe' bound form with protective dust-wrapper, a foreword, and a contents list. Apart from making an ideal gift for an aviation enthusiast this is a good way of buying Profiles if you are keen to have every issue. The edition is strictly limited.

COMING SOON

PROFILE Publications Ltd have announced a new series beginning in September which will be devoted to Armour. These will follow the lines of previous Profiles, complete with histories, specifications, pictures, and colour drawings, and covering famous tanks and armoured cars. Price will be 2s 6d each—and this will also be the new price of Aircraft Profiles published from next month. Further details in our next issue.

suspended by three straps (made from paper) from the white sword belt.

The scarlet tunic has eight buttons in fours and four bars of gold lace, grouped towards the centre, on each sleeve and skirt flap. A sash is worn over the left shoulder, which is gold and crimson net on State occasions, and plain crimson silk for others. My figure carries a map made from a scrap of paper, though this is quite optional.

The left hand figure depicts a Coldstream Guards field officer after 1902. The sword belt and sabretache were discarded, and the sword now suspended by gold laced slings from a belt worn under the tunic. The sash was worn round the waist with the tassels on the left. Instead of pantaloons and 'butcher boots', overalls and Wellingtons were worn, although for modelling purposes the appearance is the same.

Construction is similar to the previous figure but in this case the tunic used is that of the Coldstream Guardsman, with the details of buckles, etc, removed from the belt, and the tassels made from paper or flat scrap plastic. The top of the head is modelled in plastic putty, and the angle of the right arm is produced in the way described for the 1939 Irish Guards officer. The bearskin in this case is carried on the flat of the hand which is modified and stuck in place accordingly.

Full-size drawings for the 'Brown Bess' musket carried by the 1850 period Guards sergeant (page 449), and the field officer's sabretache, pre-1902.

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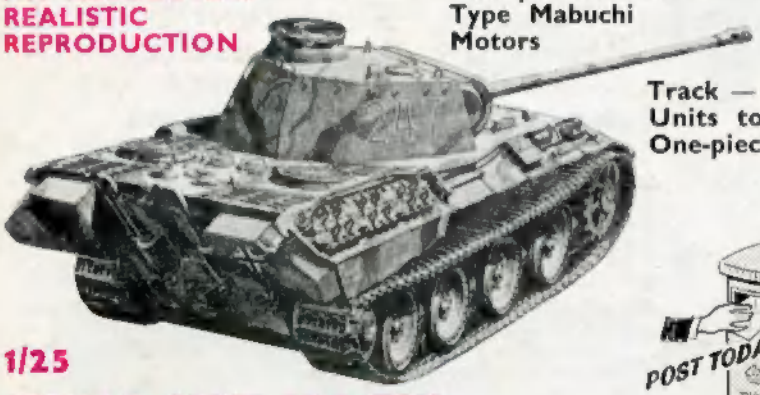

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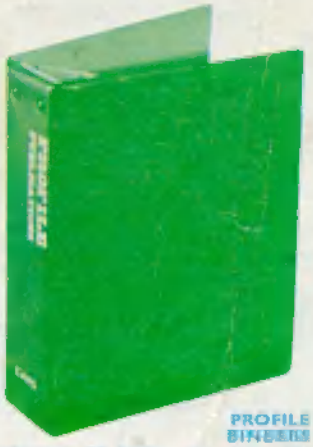

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